PUBLIC WORKS APPROPRIATIONS FOR 1961

HEARINGS

BEFORE THE

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

EIGHTY-SIXTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON PUBLIC WORKS APPROPRIATIONS

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PART 2

Bonneville Power Administration
Bureau of Reclamation
Southeastern Power Administration
Southwestern Power Administration
Tennessee Valley Administration

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PUBLIC WORKS APPROPRIATIONS FOR 1961

MONDAY, FEBRUARY 29, 1960.

BUREAU OF RECLAMATION

WITNESSES

F. E. DOMINY, COMMISSIONER
N. B. BENNETT, ASSISTANT COMMISSIONER FOR POWER AND GENERAL ENGINEERING
W. I. PALMER, ASSISTANT COMMISSIONER FOR IRRIGATION AND PROJECT DEVELOPMENT
A. R. GOLZÉ, ASSISTANT COMMISSIONER FOR ADMINISTRATION
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G. G. STAMM, CHIEF, DIVISION OF IRRIGATION AND LAND USE
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Mr. CANNON. The committee will be in order.

We take up this morning the estimates for the Bureau of Reclamation.

Mr. Dominy, we are very glad to have you with us. You may give us your statement at this time, if you will.

GENERAL STATEMENT

Mr. DOMINY. Mr. Chairman, I have a prepared statement here. Would it be your desire that I read that into the record?

Mr. CANNON. I believe we would like to have it read, if you please, Mr. Dominy.

Mr. DOMINY. Very well, Mr. Chairman.

STAFF CHANGES

Before I do that, I would like to bring the committee up to date on my Washington staff. There have been a number of changes during the past 10 months since I took over as Commissioner.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. DOMINY. Mr. N. B. Bennett, who used to be head of planning, is now Assistant Commissioner for Power and General Engineering; Mr. W. I. Palmer, is now Assistant Commissioner for Irrigation and Project Development; I brought from the field out at Boise, Idaho, Mr. Gilbert Stamm, who has been chief of our irrigation work in the Pacific Northwest for a long while, and he is now Chief of Irrigation in Washington; I brought from Texas Mr. Don Burnett, who has been doing our planning work in the Southwest for a good many

years, and he heads up our planning division in the Washington office, and of course Mr. Don Campbell, you remember, who has been with us for years, is head of power and, of course, Assistant Commissioner Golzé, whom the committee is very familiar with, continues as our Assistant Commissioner for Administration.

I am very proud of this staff, and I hope that our efforts will please the committee.

It is a pleasure to appear before this committee to discuss Reclamation's proposed program and fund requirements for fiscal year 1961. The work of the Bureau of Reclamation reflects the delegation of a sizeable responsibility in connection with the development of the water resources of the West. To maintain this responsibility at a reasonable level, six new starts have been included in the budget, four in construction and rehabilitation appropriation and two in the Upper Colorado River Basin program.

To carry forward this program in all of its phases in fiscal year 1961, we are requesting an appropriation of $309,979,000. This compares with enacted appropriations for fiscal year 1960, regular and supplemental, of $255,515,250 and a proposed supplemental appropriation pending before this Congress of $21,000 for financial assistance to the city of Coulee Dam, or a total increase of $54,442,750. This increase is distributed as follows: Approximately $5 million for the purchase of foreign currencies under title I of the Agricultural Trade and Assistance Act of 1954, as amended, on which I shall comment later; some $41.5 million represents increases in construction and rehabilitation; operation and maintenance has been increased by $3.5 million and the loan program is up some $7 million. Decreases of $2.9 million for Upper Colorado River Basin fund and a small decrease in the general investigations item have resulted in netting the increase to $54 million plus.

A word of explanation concerning the large increase in construction and rehabilitation is first in order. About half represents increased requirements for the Central Valley project, attributable to the near peak construction period of the Trinity River Division. Other construction and rehabilitation increases are due to fund requirements of about $4 million for the four new starts and a normal increase in programed work on other projects started in recent years.

The estimate for 1961 is comprised of activities as follows: General investigations, $4,650,000; construction and rehabilitation, $173,950,000; Upper Colorado River Basin fund, $71,600,000; operation and maintenance, $31,900,000; general administrative expense, $4,320,000; loan program, $18,437,000. However, it also includes $4,957,000 for purchase of foreign currencies and small amounts under separate appropriation headings for the disposal of Boulder City, Nev., and Coulee Dam Community, Wash., to assist these communities in their transition from Federal to State jurisdiction.

These amounts, if made available, with the carryover funds from the prior year, will permit the Bureau to finance a carefully planned program for all of these activities.

I should like to comment briefly on each of the appropriation items comprising the Bureau's estimate.

GENERAL INVESTIGATIONS

The estimate for 1961 is $4,650,000 as compared to the appropriation for 1960 of $4,668,992. Including carryover funds from prior years and contributions, the program for 1961 is 7 percent less than that for 1960. I should like to point out here that while the estimate for 1961 includes $250,000 for engineering methods and materials research, an activity not included in the general investigations appropriation in 1960, the estimate for advance planning amounting to $254,000, formerly carried under general investigations, has been transferred to the construction and rehabilitation appropriation for fiscal year 1961.

Now, I believe that is in accord with the committee's wishes, because advanced planning is always identified directly with the anticipation of going into construction and is tied closely to the construction budget, more closely than it is to planning. These items, in effect, cancel each other out, leaving the comparison for this appropriation item for 1960 and 1961 on equal terms.

Except, as I say, we are 7 percent under in 1961 on what we had in the planning program in 1960.

The Bureau's general investigation activities in the 17 Western States and Alaska, except those in the Missouri River Basin, are performed with funds from this appropriation. The Missouri River Basin investigations are part of the construction and rehabilitation appropriation item. Advance planning is also in construction and rehabilitation this year except for the Upper Colorado River Basin items.

The estimate provides for only a minimum program for 1961 if the Bureau is to continue effectively its long-range investigation and planning activities.

SPECIAL FOREIGN CURRENCY PROGRAM

The special foreign currency program mentioned earlier, which has been identified as a separate appropriation item under general investigations, will afford the Bureau an opportunity to avail itself of scientific and research capabilities of certain foreign countries by the use of U.S. credits which cannot be used outside of those countries. The work to be done will be supplemental and in addition to the research projects performed in our domestic laboratories. While we are requesting $4,957,000 in fiscal year 1961, only $1 million is scheduled for expenditure during the budget year—the remainder to be spread over a 2-year period.

I would like to elaborate on that for just a moment.

This research would be of great value to us in carrying on the work of our program here in the United States. We think it would also be of considerable value to those countries. The credits are there, and if we could send our technicians over there to initiate this research, to get together data and engineering advice and counsel, we think it will benefit our people and in the same process be of great value to the countries where we are carrying out the research activity.

Mr. TABER. Does that come under this foreign aid appropriation also?

Mr. DOMINY. No, sir.

Mr. TABER. Are they not kind of doubling up on us?

Mr. DOMINY. These are credits which the United States has in those countries that have to be expended in those countries. This would be one way to put that money to good use, in our judgment.

CONSTRUCTION AND REHABILITATION

The appropriation estimate for this activity for fiscal year 1961 is $173,950,000. This amount, plus $870,750 of prior year funds and anticipated slippage in 1961 of $10 million, will provide a total program of $184,820,750, compared with the program for the current year of $144,755,397. The appropriated funds for this activity will be utilized to finance initial work on four new starts, construction contract earnings and associated costs on work underway at the end of the previous fiscal year, comprising 28 regular projects and 17 units and divisions of the Missouri River Basin project, a program for rehabilitation and betterment on 10 projects of which 2 are scheduled for completion in fiscal year 1961. Of the total number of projects under construction, nine regular and six Missouri River Basin project units are grouped under the "Drainage and minor construction" category because of their relatively limited programs.

NEW STARTS

The estimate for 1961 includes $4,173,000 for initiation of construction on four new starts: Vale project, Bully Creek extension, Oregon; lower Rio Grande rehabilitation project, LaFeria division, Texas; Almena unit, Kansas; and the Yellowtail unit, Montana and Wyoming, of the Missouri River Basin project. Each of these is vital to the economic development of the area in which it is located. Complete information will be provided when we reach the individual projects on the justifications. There is also included in the estimate $2 million for continuation of investigations on the Missouri River Basin project and $3 million for financing the activities of other Interior agencies participating in the multi-purpose Missouri River Basin program.

Continuation of construction during 1961 at the rate provided in the justifications before this committee, will result in making available during the fiscal year water for the irrigation of 63,600 acres of new land and 61,200 acres of land now receiving an inadequate supply. Hydroelectric generating capacity will be increased by 48,000 kilowatts bringing the Bureau operated total nameplate capacity to 5,201,550 kilowatts.

Of the total appropriation request of $173,950,000, $136,343,100 or 78 percent will be used to finance work on six projects and three Missouri River Basin units. However, the geographical locations of these projects and units represent a fair cross-section of the Western States in which the Bureau operates.

1960 PROGRAM

During the current year we have scheduled for substantial completion the South Gila drainage facilities of the Colorado River front work and levee system; the Fort Cobb Dam and Reservoir and the

Fort Cobb municipal and industrial water facilities of the Washita Basin project; the Vega Dam and Reservoir of the Collbran project; and the Howard Prairie Dam and Reservoir, Keene Creek Dam and Reservoir, collection canals, and Green Springs powerplant of the Rogue River Basin project, Talent division; the diversion works and canals of the middle Rio Grande project; and the storage basin and river pumping plant of the lower Rio Grande rehabilitation project, Mercedes division. Twelve projects in the drainage and minor construction status are also scheduled to be completed.

On the Missouri River Basin project, during the current year we expect to complete the Boysen-Pilot Butte 115-kilovolt transmission line and substations, and Fargo-Grand Forks 115-kilovolt transmission line and substation of the transmission division; and the Fremont Canyon powerplant and switchyard of the Glendo unit. Three units in the drainage and minor construction status are also scheduled to be completed.

1961 PROGRAM

Moving on to fiscal year 1961, with the funds requested we have programed for completion the pumping plants and the lateral system of the Wellton-Mohawk division of the Gila project; the first section of the southside canal of the Collbran project; the Prineville Dam and Reservoir of the Crooked River project; and the Wanship Dam and Reservoir, and Gateway Canal and diversion works of the Weber Basin project. Two units in the drainage and minor construction program are also to be completed. On the Missouri River Basin project, also during fiscal year 1961, the Owl Creek unit, the Gray Reef Dam and Reservoir of the Glendo unit, both in Wyoming, the outlet works extension of the Cedar Bluff Dam of the Cedar Bluff unit, and the Osborne Canal and laterals of the Webster unit are all to be substantially completed. The transmission division of the Missouri River project has scheduled for completion the Bismarck-Jamestown 230-kilovolt transmission line No. 2 and substations, the Fort Peck-Dawson County-Bismarck 230-kilovolt transmission line and substation addition, and the Havre-Shelby 115-kilovolt transmission lines and substations.

The 1961 program for the rehabilitation and betterment of existing projects which have become obsolete or badly deteriorated will require $3,609,000 of the appropriated funds to finance work on 10 projects.

UPPER COLORADO RIVER BASIN FUND

For fiscal year 1961, we are requesting $71,600,000, which, with rather substantial carryover funds from the prior year, due largely to extended labor-management negotiations on the Glen Canyon unit, and initial underfinancing due to anticipated slippage and delays, will provide a sound program for the increasing construction requirements of the Colorado River storage project and participating projects.

Mr. Chairman, may I go off the record for just a moment?

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. On the record.

Mr. DOMINY. During fiscal year 1961 work will be underway on four units of the storage project and six of the participating projects. Two of these, the Curecanti unit and the Florida participating project, are the new 1961 starts. The importance and need for these new starts will be explained in full when we reach these projects in the justifications. Three of the participating projects, the Hammond, Smith Fork, and Seedskadee, were placed under construction during the current year and will be continued during 1961.

SEEDSKADEE PROJECT

While Seedskadee was included in the 1960 program as a new start, we have not actually gotten underway there, and we are not going to award contracts until we clear up a problem of trona which has been discovered to underlie the Seedskadee lands. Trona is a valuable material and they have discovered that there are several large veins of it beneath the lands which were to be irrigated as part of the Seedskadee project. The lands are checkerboarded between Union Pacific ownership and public lands and we have no control over the Union Pacific in any event. If this mining is to be undertaken, while it is 1,500 feet or so under the surface, we fear that there will be a subsidence on the surface if we take a vein of trona 8 to 12 feet thick out from under the land. This will have to be checked out, and if the mining is to be undertaken, we will have to find a way to have irrigation compatible with mining, or eliminate that part of the project where the mine is to be located. So we will not actually undertake construction until we get those things cleared up.

We are working on it very actively at the moment.

Mr. JENSEN. Is trona a product used by the military?

Mr. DOMINY. Mr. Palmer, do you recall what the basic uses of trona are?

Mr. PALMER. It is widely used primarily in ceramics and it has had wide application in the chemical industry as well as for ceramics such as glass, electric insulators, and so forth.

Mr. DOMINY. I think the answer is that it may not be directly connected with the military; but, certainly, indirectly in connection with manufacturing processes identified with military requirements.

Mr. JENSEN. It might be used as a substitute for other products?

Mr. DOMINY. Yes, sir.

Mr. CANNON. The witness will proceed.

Mr. DOMINY. On the Flaming Gorge unit, 1961 will see completion of all highway relocations and continuation of work on concrete placing in the dam, switchyard, and powerplant construction and permanent operating facilities. The program for Glen Canyon provides for marked construction progress on the dam and reservoir, the powerplant and switchyard and start of the protective works for the Rainbow Bridge National Monument. Funds are provided to permit continuation of construction of the Navajo Dam at the scheduled rate and for completion of the right-of-way acquisition program and initiation of railroad and telegraph line relocations. Investigations will continue on the transmission division including discussions with all interested parties and advance planning will be continued on the Crystal Dam of the Curecanti unit and five participating projects. Quality of water studies will be continued. Definite plan reports on the Emery

County and LaBarge participating projects are scheduled for completion in 1961.

OPERATION AND MAINTENANCE

The appropriated funds required for operating and maintaining the Bureau's irrigation, power, municipal and industrial and other facilities for fiscal year 1961, are estimated at $31,900,000. This compares with an appropriation of $28,402,725 for the current year. Substantial increases in replacements and additions, more funds for the Columbia Basin drainage work and for new facilities coming into operation in fiscal year 1961 account for this increase. The funds requested for 1961 plus some $3,800,000 to be advanced by the water users and others and $1,024,000 available from the revolving fund for the Fort Peck project are needed for the operation and maintenance of 65 projects or divisions of projects, including Missouri River Basin units, for continuance of work on the Colorado River front work and levee system, soil and moisture conservation operations and halogeton control on Bureau lands.

As a permanent activity, the Bureau of Reclamation operates and maintains only power projects and the power facilities and other reserved works of multipurpose projects. Completed irrigation facilities are turned over to water users organizations for operation and maintenance as rapidly as the necessary agreements can be consummated. Pending completion or until such agreements are executed, the systems are operated by the Bureau with appropriated or advanced funds. I am pleased to be able to report to this committee that during fiscal year 1959 the Bureau turned over to water users organizations facilities to serve 25,808 acres. During the fiscal year 1960 we plan to turn over 49,449 acres and the 1961 program contemplates the release to water users for operation and maintenance of 76,492 more. Under its power program, the Bureau will operate and maintain directly or by contract during fiscal year 1961 (exclusive of Fort Peck project facilities), a total nameplate capacity of 5,201,550 kilowatts in 43 powerplants, an increase of 51,000 kilowatts over 1960, and approximately 9,814 circuit miles of transmission lines, an increase of approximately 683 circuit miles.

In addition, 1,024 circuit miles of transmission lines and 30 substations with 330,550-kva capacity will be operated and maintained on the Fort Peck project in fiscal year 1961. These facilities are physically interconnected with the transmission system of the Missouri River Basin project resulting in an integrated operation. I should like to explain here that in order to reflect this integration clearly in the Bureau's program, the construction and operation and maintenance requirements of the facilities of the two projects have been merged under the transmission division of the Missouri River Basin project for the first time in fiscal year 1961. The construction funds required for transmission facilities, previously requested under the Fort Peck item, are included in the fiscal year 1961 allocation for the Missouri River Basin project. The operation and maintenance expenses for these facilities are also included in the Missouri River Basin program but are defrayed from the continuing fund established by the act of May 18, 1938.

Of the total appropriation requested, approximately 90 percent will be returned to the United States from power and irrigation

revenues and proceeds from the sale of municipal and industrial water. The balance, which is nonreimbursable and nonrevenue producing, is made up principally of the Colorado River front work and levee system, the program for soil and moisture conservation operations and flood control work.

Now, that 90 percent reimbursement on this O. & M. item is reimbursable in the year in which it is expended, and it is actually in the Treasury before we expend it in most cases.

GENERAL ADMINISTRATIVE EXPENSES

The estimate required to finance the general administrative functions of the Bureau is $4,320,000. This is slightly more than the $4,290,000 appropriated for fiscal year 1960 principally due to employee health benefit costs commencing in 1961. These nonreimbursable funds are used to finance the general overall management-type functions and activities of the Commissioner's Office in Washington, and Denver, Colo., and the seven regional offices.

LOAN PROGRAM

For fiscal year 1961 we are requesting $18,437,000. This amount provides funds to complete the financing of four small projects loans for which one year needs were appropriated in fiscal year 1960. It also provides the full financing requirements for five additional small projects loans for which applications have been approved by the Committees on Interior and Insular Affairs. Three of these have completed their 60-day qualifying period before the committees and the remaining two will do so within the immediate future. Finally, the request includes $220,075 for administration of the loan program, that is, for investigation of potential loans and for meeting administrative costs involved in negotiating contracts, answering inquiries and generally servicing potential applicants for loans under either the distribution system or small projects loan program.

INCREASE IN BUDGET

Mr. CANNON. It is to be noted here that while you have one or two minor decreases you are in the main requesting more money for 1961 than you requested last year.

How much is the total request here in excess of your total request of last year?

Mr. DOMINY. It is $54 million, plus, Mr. Chairman. $54,442,750 is the total increase.

Mr. CANNON. At this point I will have included in the record a summary table.

(The table referred to follows:)

Comparison of 1960 appropriations with 1961 estimates

Bureau or Office	Appropriated, 1960	Adjustments	Adjusted appropriation	Estimate, 1961	Estimate, 1961 compared to adjusted appropriation, 1960
BUREAU OF RECLAMATION					
General investigations	$4,668,992	[1]—$164,142	$4,504,850	$4,650,000	—$18,992
General investigations (special foreign currency program)				4,957,000	+4,957,000
Construction and rehabilitation	132,466,171	[1]+164,142	132,630,313	173,950,000	+41,483,829
Operation and maintenance	28,402,725		28,402,725	31,900,000	+3,497,275
General administrative expenses	4,290,000		4,290,000	4,320,000	+30,000
Upper Colorado River Basin fund	74,459,775		74,459,775	71,600,000	—2,859,775
Loan program	11,227,587		11,227,587	18,437,000	+7,209,413
Total, Bureau of Reclamation	255,515,250		255,515,250	309,814,000	[2]+54,298,750

[1] Comparative transfer of advance planning funds.
[2] Excludes $165,000 current definite appropriations for Boulder City and Coulee Dam community for fiscal year 1961 and $21,000 proposed supplemental for Coulee Dam community for fiscal year 1960. The application of these funds increases this total to $54,442,750.

DEFICIT SPENDING

Mr. CANNON. Last year we ran into the biggest peacetime deficit in the fiscal history of the United States. We spent over $12 billion more than we took in, and our extravagance brought with it innumerable ills. The future dangers resulting from that deficit spending of more than our income now constitute great hazards, both national and international.

Against this continuing year after year after year to spend more than we have the only remedy seems to be to cut down our spending.

But, here, you are asking for more next year than you will spend this year.

NEW STARTS

How many new starts are included here?

Mr. DOMINY. We have six new starts, Mr. Chairman, in fiscal year 1961.

Mr. CANNON. We ran away over our income last year despite the fact we did not appropriate as much as the administration asked us to spend which was more than it had ever asked of us before. We are going further and further into trouble financially unless we cut down on these expenditures.

Where could we cut this bill in order to stay within last year's expenditures, at least? That would not be too much of a cut, but where could we cut it down?

Mr. DOMINY. As I have repeatedly discussed with the committee—and I think the committee shares the view that this is a fact—once this work is put into the construction pipeline we are then pretty largely committed to continuing it at an optimum and economical rate to completion.

So, as far as the going work is concerned, I do not see that there is any logical and practical place to reduce this budget.

Now, the new starts in and of themselves are not a significant item as far as the 1961 total is concerned. They do not start to

build up significant budget requirements until the second and third year of construction. This is the thing that we all recognize. Now, I share the Chairman's——

ULTIMATE COST OF NEW STARTS

Mr. CANNON. I wish you would at this point give us the total of the ultimate cost of the new starts.

Of course, we know by sad experience that these expenditures always turn out to be larger than you promise us when we start them.

Will you at this point give us the total cost of these new starts?

Mr. DOMINY. Very well, sir.

On the Vale, Bully Creek extension project the total estimated cost is $3,326,000, and the budget request for 1961 is $173,000.

On the Lower Rio Grande rehabilitation project, LaFeria Division, the total estimated cost is $5,772,000 and the budget request for 1961 is $500,000.

Mr. CANNON. Let me ask again, what is the total? This bill is $54 million above last year. We should reduce it to at least what it was last year. We cannot increase taxes, so the only alternative is to cut expenditures.

If we cut out all new starts, how much would we reduce it?

Mr. DOMINY. The new start requests for fiscal 1961 is only $6,323,000.

Mr. CANNON. But the eventual cost of them——

Mr. DOMINY. Oh. The eventual cost of them is $217,190,000.

Mr. CANNON. And, of course, that is what we have to take into consideration.

OPERATION AND MAINTENANCE OF NEW STARTS

Now, another disadvantage, in addition to the initial cost of construction of new projects, is the annual cost of operation and maintenance which we must assume.

How much would you say the total maintenance, repair, and replacement, aside from operations, totals in this bill?

Mr. DOMINY. Well, it is very difficult to break out maintenance from operation, although we can do that. We could develop that figure for you, sir, but in an orderly system of operations and maintenance, we do replace, as a particular element reaches its useful life——

Mr. CANNON. But every time we build a new project we take on the responsibility of maintaining that project indefinitely; is that not true?

Mr. DOMINY. Yes; but the operation and maintenance cost is always returned to the Treasury in the year in which it is spent, whether it is power or irrigation—the irrigation we do turn over to the water users and, therefore, we avoid the annual need for an appropriation as far as possible. Even where we get the money from Congress, that money is returned to the Treasury the year in which it is expended by operations and maintenance in the form of collections from either the powerplants or from the water users.

Mr. CANNON. You cannot suggest any economy which would bring this bill down to what it was last year, except to cut out the new starts?

Mr. DOMINY. The new starts is the one thing that we have control

over in terms that if you do not get the work underway you do not have any loss entailed with a deliberate slowdown.

COST OF NEW FEATURE STARTS ON GOING PROJECTS

Mr. CANNON. There are other items in this bill on which you have gone ahead and spent money for planning, but on which we have not yet started construction. What would be the total of the items on which we have not yet started construction?

Mr. DOMINY. I could not give you that without going through our budget pretty carefully. There are new feature starts on a going project, for example, and we can give you a detailed breakdown of that, sir.

Mr. CANNON. Include that in the record when the transcript comes back to you?

Mr. DOMINY. Very well, sir.

(The information requested follows:)

WORK ON WHICH CONSTRUCTION HAS NOT STARTED

If it became necessary to reduce the Bureau's fiscal year 1961 appropriation request to about the fiscal year 1960 level, it could be accomplished by deferring the start of construction on projects and features not yet underway and by reducing the loan program request to the estimated fiscal year 1961 expenditures in lieu of fully financing the loans. The following is a list of projects, loans, and features with the required amount of reduction in fiscal year 1961 program applicable to each and the general effect of such a reduction.

LOAN PROGRAM

Continuation of the loan program on an annual financing basis, instead of on full financing as proposed in the budget, would reduce the 1961 fiscal year fund requirements by an additional $8,694,175. Should this action be taken, authority to execute loan and repayment contracts with the contingent on appropriation provision of section 12 of the act of August 4, 1939, will be required for contracts executed in fiscal year 1961. As the committee has been advised, however, the interests of the Government would be served by providing the full amount of the budget request to avoid the higher costs which may be incurred by individual fiscal year financing.

	Fiscal year 1961 budget request	Fiscal year 1961 requirement	Possible Reduction in fiscal year 1961 appropriation
Santa Ynez Water Conservation District, California	$2,487,000	$810,000	$1,677,000
Georgetown Divide Public Utility District, California	2,261,175	750,000	1,511,175
Donna Irrigation District, Hidalgo County No. 1, Texas	4,061,000	2,050,000	2,011,000
South San Joaquin Irrigation District, California	4,895,000	1,400,000	3,495,000
Loans with no financing after fiscal year 1961	4,732,825	4,732,825	0
Total	18,437,000	9,742,825	8,694,175

FISCAL YEAR 1961 NEW PROJECT STARTS

The two units proposed as new starts on the Missouri River Basin project and the two new starts proposed on the Colorado River storage project and participating projects are a part of the integral plan for those two basinwide developments. While these as well as the other two proposed new starts can be deferred without disruption in the overall Bureau program, a delay in starting these projects would, of course, defer the availability of irrigation facilities to provide a full water supply to 11,080 acres, facilities to provide a supplemental supply to 47,865 acres, the rehabilitation of facilities serving 26,660 acres and the development of electric generating capacity totaling 260,000 kilowatts. In short, a

delay in placing these projects into the construction stage results in postponing realization of their benefits.

Project or feature	*Possible reduction in fiscal year 1961 appropriation*
New project starts, fiscal year 1961:	
Construction and rehabilitation:	
Lower Rio Grande rehabilitation project, Texas La Feria division	$500,000
Missouri River Basin project:	
Almena unit, Kansas	1,000,000
Yellowtail unit, Montana-Wyoming	2,500,000
Vale project, Oregon, Bully Creek Extension	173,000
Upper Colorado River Basin Fund:	
Upper Colorado River storage project:	
Curecanti unit, Colorado	1,400,000
Florida, Colorado	750,000
Subtotal	6,323,000

FISCAL YEAR 1960 NEW PROJECT STARTS

These projects are now underway with funds provided by the fiscal year 1960 Public Works Appropriation Act. While there would be no major disruption in the Bureau's program if construction of the completely separable projects were delayed, the considerable investment to date in design data, in the preparation of designs and specifications and in other preconstruction work for them would lie idle. In the case of new starts closely associated with going projects, additional undesirable conditions would result.

Delay in the continuation of the Trinity power facilities would be particularly costly. These facilities are now proceeding on a schedule which is coordinated with the availability of water to be made possible by the completion of Trinity Dam and the other major Trinity division structures. Thus, any delay in the power facilities construction would create a loss in power revenues and extend the payout of the project while leaving the completed storage facilities largely unused.

Delay in the continuation of construction on the East Bench unit of the Missouri River Basin project would seriously complicate a major highway relocation problem existing in connection with the construction of this unit. Construction of a reach of the Interstate System, originally planned to cross the reservoir area, has already been deferred several years. It is doubtful if the State will be willing to wait any longer if the decision to appropriate funds in fiscal year 1960 to place this project in the construction program were now to be rescinded.

The Red Willow Dam of the Frenchman-Cambridge division is an integral part of a going project. Delay would create a costly extension of the construction period for this division of the Missouri River Basin project and would delay the multipurpose benefits associated with the Red Willow Dam.

Project or feature	*Possible reduction in fiscal year 1961 appropriation*
New project starts, fiscal year 1960:	
Construction and rehabilitation:	
Central Valley project, California: Trinity division power facilities	$14,150,000
Chief Joseph Dam project, Washington, Greater Wenatchee division	1,850,000
Missouri River Basin:	
Cedar Bluff unit, Kansas	1,250,000
East Bench unit, Montana	2,650,000
Frenchman-Cambridge division, Nebraska Red Willow Dam	2,800,000
Transmission division, various Iowa transmission lines	2,350,000
Upper Colorado River Basin Fund: Participating projects:	
Hammond project, New Mexico	1,150,000
Seedskadee project, Wyoming	4,850,000
Smith Fork, Colo	1,350,000
Subtotal	32,400,000

FISCAL YEAR 1961 NEW FEATURE STARTS ON GOING PROJECTS

These features for which construction contracts will be first awarded in fiscal year 1961 are all integral parts of projects underway. Delay in their start and the consequent disruption in the project program would extend the overall construction period, result in an increase in administrative cost and add appreciably to the cost of the project. In some instances a costly reduction in force would be necessary.

For the most part these features are irrigation canal and lateral distribution systems and power system transmission facilities. Their construction is essential to the achievement of the functional use of storage reservoirs, dams or powerplants now complete or under contract and their construction will directly effect the date irrigation starts or power transmission begins. Delay would cause reservoir capacity and the power generation facliities to lie idle and unused and the return of the large investments to date in these projects would be deferred.

The budget requests for these projects support an orderly, coordinated construction program. Reduction in the requested amounts would be disruptive and costly.

Project or feature	*Possible reduction in fiscal year 1961 appropriation*
New feature starts in fiscal year 1961 going projects:	
Construction and rehabilitation:	
Central Valley project, California:	
Corning distribution system	$525,000
Feather River distribution system	300,000
Madera extensions	1,750,000
Maine Prairie distribution system	300,000
Collbran project, Colorado: Bonham Dam	190,000
Columbia Basin project, Washington: Block 23 lateral system	220,000
Missouri River Basin project:	
Ainsworth unit, Nebraska	1,350,000
Transmission division, various, Fort Thompson-Granite Falls transmission line (2d circuit)	850,000
Morris substation	740,000
San Angelo project, Texas: Main canal and laterals	399,000
Washita Basin project, Oklahoma: Recreation and fish and wildlife facilities	212,000
Subtotal	6,836,000

RECAPITULATION

Category	
Loan program	8,694,175
Fiscal year 1961 new project starts	6,323,000
Fiscal year 1960 new project starts	32,400,000
Fiscal year 1961 new feature starts	6,836,000
Total	$54,253,175

FINANCIAL ASSISTANCE TO CITIES OF COULEE AND BOULDER

Mr. CANNON. Now, you have included here such items as "Financial assistance to cities."

On what ground do we pay financial assistance, for instance, to the city of Coulee Dam?

Mr. DOMINY. There were two Government towns that were constructed in connection with our big projects, one at Boulder City, Nev., in connection with the construction of Hoover Dam, and the other was this community of Coulee Dam, Wash., in connection with the Grand Coulee Dam. We have operated those for years as part of the project. Under special legislation we have gotten both of them

incorporated under State authority and outside of the Federal Government tent.

Mr. Palmer can give you more detail on that, sir.

Mr. CANNON. You have done that by selling them to individuals?

Mr. DOMINY. Yes, sir. We disposed of the houses to individuals and turned over the streets, lights, and city water supply and sewers to the municipalities.

Mr. CANNON. And, the Federal Government no longer has responsibility for the maintenance of any of that property or the maintenance of the streets and other facilities or other municipal expenses?

Mr. DOMINY. You are exactly right, except for a slight continuing responsibility recognized in the special acts while they are getting on their feet, and this is the money we have in mind here.

Mr. Palmer can give you any details that you wish concerning this program.

Mr. PALMER. Mr. Chairman, the record of the Bureau's transfer in those two cities is excellent. We have transferred virtually all of the improved property at Coulee Dam. It is an incorporated city and the people there moved faster than we had anticipated and even perfected their incorporation several months ahead of the schedule that had been drafted and have taken over the responsibility as an organized municipality under Washington law.

Mr. CANNON. You do not anticipate any difficulty of that character?

Mr. PALMER. We anticipate none. As a matter of fact, the record has been outstanding. They have taken over and we have moved the property under Federal ownership, consistent with proper appraisals and fully in compliance with the authorizing acts.

The two items remaining are exactly as the Commissioner has outlined, which are small items of assistance to get the towns on their feet.

In the case of Grand Coulee the $15,000 is the last single item called for under the authorizing act, and will be the last payment to that community.

FUNDS SPENT ON MAJOR RIVERS

Mr. CANNON. A great deal of the money that you propose spending in this bill is in connection with the Colorado River.

How much of those funds are reimbursable?

Mr. DOMINY. Well, almost 100 percent of those funds are reimbursable.

Mr. CANNON. We have spent more money, I suppose, on the Colorado River than most any other river in the country, except the main system of the Mississippi River; have we not?

Mr. DOMINY. Well, the Columbia River has had a great deal of Federal expenditure, and when you take into account flood control on the Mississippi and its principal tributaries, I am sure there has been more Federal funds expended on that system than any other river basin. Then, I would think, perhaps, the Columbia River would be about second, with the Colorado coming along possibly third. That would be my estimate of the matter.

Mr. CANNON. In all of these projects much of this money is being expended in rehabilitation and in reclamation in providing for irriga-

tion which would increase the total acreage of arable land in the United States?

Mr. DOMINY. Yes, sir.

EXCESSIVE LAND UNDER CULTIVATION

Mr. CANNON. How do you answer the objection which is being made that we already have too much land under cultivation in the United States and we are spending vast sums of money every year on the land bank and other programs to take acreage out of cultivation at the same time you are spending large sums to put more land into cultivation?

Mr. DOMINY. Mr. Chairman, this is a matter that we have given careful thought to. As a matter of fact, it is the argument against continued irrigation development we hear most often.

Mr. CANNON. And, it seems to me to be one of the most unanswerable.

Mr. DOMINY. We have looked into this with a great deal of care. We have checked with the Department of Commerce and with the Department of Agriculture and with the Census Bureau on the census and of estimates of future requirements for food and fiber. We have checked with the Department of Agriculture for the latest information we can get from that very responsible agency of the Government, and Mr. Palmer has summarized the material which we have gathered on this matter. I would like to have him tell you briefly the nature of the material we have, and if you would like to have a full statement for the record, we will be glad to supply it.

Mr. CANNON. We will be glad to have that in the record at this point.

Will you please give us a full statistical statement on it, covering the entire situation?

Mr. DOMINY. Very well, Mr. Chairman; we will do that at this point.

(The information supplied follows:)

WESTERN POPULATION GROWTH EXCEEDING GROWTH RATE OF EASTERN STATES

The westward movement of people continues to press the rate of population in the 17 reclamation States well ahead of that in the East. Statistics released by the Bureau of the Census show that the annual growth rate for the 17 reclamation States between April 1, 1950, and July 1, 1959, was 2.52 percent, compared with a rate of 1.52 percent for the 31 Eastern States. The net population increase in the United States as a whole over this 9-year period amounted to a growth rate of 1.75 percent annually.

Movement from other regions of the Nation is the chief cause of this higher growth rate in the Western States. For every two persons gained in the West via the natural population increase, another person moves in from one of the Eastern States. The estimated July 1959 population of the 17 reclamation States was 42,566,000, of which about 2.8 million migrated from Eastern States since 1950.

Nevada and Arizona with growth rates of 6.41 percent and 5.68 percent, respectively, grew at the fastest rate. Although the 4-million-plus persons that California gained represented a rate of 3.81 percent, this amounted to nearly half the increase in the entire West.

Should the current growth rates continue, the West can expect to have 50 percent more people by 1975 and three times its present population by year 2010. These increases will far exceed the capacities of existing municipal and industrial water supply systems of most cities of the West. Not only will increased

population numbers result in an overdraft, but increasing per capita consumption will further tax the ability to keep pace with demand. The Department of Commerce expects per capita water use to increase 50 percent between now and 1975. It has already doubled since 1930.

Obviously, continued effort to develop water resources in the West is as essential today as at any time in history. We can expect that the objective will be more difficult to achieve as time goes on, because the simple, inexpensive projects have already been built. Investigations must be more detailed because facilities will be more complex. Each increment of precious water which is wrung from its natural source will come at greater cost.

RECLAMATION AND THE CROP SURPLUS PROBLEM

A frequent challenge to reclamation is expressed in these terms: "Why develop new land for irrigation when the country is already troubled wtih agricultural surpluses?" This question deserves a considered answer since it applies not only to the Federal reclamation program, but to the conservation, research, and educational activities of the Department of Agriculture, other agencies in Government, and of private industry. The activities of many are directed to efficiency and increased production from the Nation's agricultural resources.

The question of crop surplus and its relationship to the Federal reclamation program is one of the most discussed and least understood subjects. The general misassumption is that the development of an acre of irrigated land in the arid West adds to the oversupply of commodities in surplus supply and for which the Government supports the price. An understanding of this problem requires, not generalizations, but an examination of the production from reclamation projects in terms of commodities known to be surplus. Four crops make up about seven-eighths of the value of the commodities held by the Commodity Credit Corporation under loan or in inventory. These are tobacco, corn, wheat, and cotton. Farms on reclamation projects do not grow any tobacco. Reclamation farms grow about one-half of 1 percent of the U.S. production of corn and about 1½ percent of the total wheat crop. Corn grown on reclamation projects provides a winter feed base and complements the use of the vast area of western rangeland. In the traditional one-crop wheat areas of the West, the introduction of irrigation results in diversification and the growing of high-value strong demand crops. The acreage and production of wheat is reduced significantly. The small amount of wheat grown is seeded as a nurse crop in getting legumes started and for farm-feed consumption.

Production of cotton in the irrigated West is vastly more efficient than in many of the older cotton-producing areas. Yields are often 3½ times the average obtained elsewhere in the United States. In the irrigation of cotton in the West the grower brings under control efficient practices which, with a standardized product, results in lower unit costs of production and a healthy demand.

Imbalances have built up in a few agricultural commodities but little recognition has been given the subject of nutritional deficiencies. We may be relatively well off in terms of the rest of the world, two-thirds of which is said to be undernourished. However, a recent survey of dietary levels (USDA Cir. ARS 62–6, 1957) shows that more of the protective foods—fresh vegetables, fruits, meats, and dairy products—are required to meet adequate dietary standards. Irrigated farms in the West supply many of these needed products. For example, from the Southwest we receive large supplies of winter fruits and vegetables, citrus, nuts, olives, lettuce, grapes, and dozens of other nutritious items which are grown almost exclusively under irrigation. Expansion in these crops must take place consistent with the population increases if we are to maintain even the present dietary levels.

Irrigation farming in the West enjoys a complementary rather than a competitive relationship with the whole of the country's agriculture. Nonirrigated farmland producing the bulk of the crops in surplus is largely confined to a one-crop economy and cannot diversify or change in response to demand. The irrigation farmer in the West has been able to shift his production from surplus crops to those that are in current demand. This explains in part why the production from Federal reclamation projects does not contribute significantly to the crop surplus problem. Only a negligible amount of the U.S. production of the three major crops in surplus supply are grown on farms of Federal reclamation projects.

The population of the Nation is increasing at a rapid rate, with a surge toward the West. The base for economic development can be provided through water resource development to provide homes and jobs and opportunities on the farms and in the cities. The material demands of these new westerners will come back to the eastern industrial centers in the form of orders for new equipment, new cars, new appliances, chemicals, clothing, and capital.

The Nation's population growth proceeds at the rate of about 3 million additional persons per year, while the fixed farmland base of the Nation diminishes at the rate of about 1.5 million acres per year due to conversion to roads, airports, and cities. To provide the living and working space, the jobs, and food and fiber for a population numbering 230 million in 1975 and 370 million in year 2010 will require development of all of our resources. Perhaps the greatest single domestic challenge that will confront us in the next generation is whether we can act fast enough to develop the water resources that this vastly expanded economy will require.

NEED FOR LAND AND WATER RESOURCE DEVELOPMENT

A report prepared by the U.S. Department of Agriculture for the Senate Select Committee on National Water Resources discloses that the rapid population growth will soon place this country in a position of farmland shortage unless timely offsetting actions are taken. In this report the Department of Agriculture appraised the food and fiber needs, export and import requirements, and farm production potentials for the United States in 1980 and 2000. Consideration was given to possible crop yield increases and to shifts in land use.

Population growth to 330 million persons, plus a 12-percent increase in per capita consumption, will boost the total requirement for farm products to a level double that of the present. The report concluded that land-use shifts in the 1.9 billion acre land base of the United States can provide a net addition of 63 million acres of cropland by the end of the century. Limited land-use capabilities will preclude converting as much land as will be needed, and per-acre crop yield increases of 76 percent will be necessary to meet the expanded food and fiber demands in year 2000.

Breaking out of grassland in the order of 31 million acres and clearing of 74 million acres of timberland will bring vast new areas under the plow. These shifts to cropland use are offset in part by shifts of cropland to other uses. The conversion of timberland to crops represents a loss of one-fourth of our present and future timber-growing capacity. However, the Assistant Secretary of Agriculture states this is not recommended.

Of more immediate concern is the short-range projection cited by the report. By 1980, the present 177 million population will have grown to 244 million, with commensurate requirements for additional agricultural products. To meet these needs, the Department of Agriculture projected crop yields 41 percent above the present, and a net addition of 20 million acres of cropland.

None of the charted conversions and the assumed productivity increases are presumed to be automatic, but all will require well-directed effort and considerable financial support. Research and education will have to be intensified in order to realize the yield increases required.

Supplemental irrigation in the East as well as in the moisture-deficient West, is counted on for a share of the increased productivity of the Nation's agricultural plant. The report assumes an increase in irrigation in the Western States from 1954 to 1980 of about 5.4 million acres and from 1980 to 2000 of about 7.5 million acres.

IMPORTANCE OF IRRIGATION IN THE WEST TO OUR IMPROVED NATIONAL DIET

The diet of the people of the United States is without question the most pleasantly varied and the most nearly adequate of anywhere on earth. Yet despite the high average nutritive content of diets in this country, nearly half of the families have food supplies that do not reach recommended amounts in some one or more nutrients.

The foods needed to alleviate these deficiencies are the fresh fruits and vegetables, and the meat and livestock products that constitute the principal products of our irrigated western farms. From the subtropical irrigated valleys of the Southwest come large supplies of winter fruits and vegetables. Many items of our varied diet are grown almost exclusively under irrigation.

The average person's diet now contains 15 percent more calcium, 25 percent more riboflavin, 20 percent more protein, and 5 percent more vitamins A and C than it did 25 years ago. These health-promoting factors are to be found in the leafy green and yellow vegetables and citrus fruits, in the wide array of delicious tree fruits, and in the subtropical delicacies such as avocados, figs, dates, and olives; and in the prime meat and dairy products produced from feed grains and forages widely grown in the irrigated West.

By virtue of the marvels of fast refrigerated shipping and vacuum packing, an item so perishable as head lettuce is successfully transported from coast to coast. Nine-tenths of all the fresh market lettuce is grown in the reclamation States. Similarly great proportions of many other important food crops are contributed to the Nation's dining tables by these irrigated lands.

The doubling and redoubling of the Nation's population, together with a general upgrading of our everyday diet has called for tremendous shifts in the kind and quality of farm production. Rapidly passing is the old high-starch diet, and fast rising is the fresh, balanced fare with an abundance of wholesome fresh meat. Irrigation expansion has assisted the Nation to change its traditional production patterns. Further potential in this direction depends largely upon continued efforts to harness our undeveloped water resources in the sections of the country where water, land, and climate can provide us with the vital food products we need.

GENERAL INVESTIGATIONS VERSUS PROJECT INVESTIGATIONS

Mr. CANNON. In what way do general investigations differ from your project investigations.

Mr. DOMINY. Mr. Palmer will cover details of that.

Mr. PALMER. Are you now ready, Mr. Chairman, to discuss——

Mr. CANNON. We want to know in what respect they differ.

Mr. PALMER. Mr. Chairman, in this year's presentation of this budget material we have separated advanced planning from the general investigations item for the first time. We believed that by doing this it gives us a better breakdown of fund utilization between what are specific project costs as tied to the planning work involved in bringing projects to the point where you can initiate physical construction on the ground.

Mr. CANNON. The committee has strongly urged that for some time. We consider it very essential that each step should be set out separately so we can see just where this money is being spent and that it is being spent for the purpose for which the committee appropriated it.

Would that result, then, in a reduction of the amount you use for general investigations?

Mr. PALMER. It results in the shift of some $254,000 from the general investigation program as we have heretofore presented it to the committee, and attaches that to the construction and rehabilitation item. As I say, we believe, as does the committee, that this gives a better presentation of fund utilization and nets out with a better showing as to how the money is actually being used.

Mr. CANNON. What is the nature of your long-range investigations?

Mr. PALMER. The long-range investigations would be those involved in the various steps of reconnaissance of the basin and the detailed review of the project potentials, considering the various types and kinds of requirements that are present in the area, or that might be anticipated in the area.

Mr. CANNON. Shouldn't that all be completed and shouldn't you have all data in hand before you start construction on any project?

Mr. PALMER. As you go through the general investigations program, you lead up to a feasibility grade report which is the basis of the au-

thorization. At that time we believe then you should shift over into the advanced planning type of activity which ties it down to a project. But, as you have anticipated, the proper place to tie all this material together is at the time you seek authorization.

FOREIGN CURRENCY PROGRAM

Mr. CANNON. How does the purchase of foreign currency promote your program?

Mr. DOMINY. Assistant Commissioner Golzé has a statement in connection with this that I would like to have him discuss with you.

It promotes our program, as I said a moment ago, by offering us a chance to utilize the credits that the U.S. Government has accumulated and which are required by our terms with these countries, being spent in their country. This offers us, we think, an opportunity to utilize that money to good advantage on some engineering research and materials research that would advance our program and at the same time be of some aid to their countries as well.

Mr. CANNON. What countries are accumulating data which would be of value to us that are beyond the range of our own engineers?

Mr. GOLZÉ. Mr. Chairman, a number of countries overseas have intensive programs underway in various areas of engineering research that they are utilizing for their own development. The program proposed here would permit the Bureau of Reclamation to participate in the programs that are being carried on overseas to the extent that they would be of benefit to us in our domestic program. The countries that would be included in the programs are India, Israel, Pakistan, Poland, and Spain, as well as the United Arab Republic and Yugoslavia.

Mr. CANNON. And, those are countries which are indebted to us and these funds are funds which cannot be used outside those countries but which can be used without expense to our own Government?

Mr. GOLZÉ. There are an excess of foreign currencies available in those countries, with the possible exception of Spain, which would be available to finance this program; that is, they are credits that have resulted from the sale of surplus crops in those countries and they are available foreign currencies above the ordinary needs of the U.S. Government which could be applied to this program.

PUBLIC POWER ON NEW STARTS

Mr. CANNON. Among these new starts is there anything for public power?

Mr. DOMINY. Yes, sir. Among the new starts is Yellowtail, which is a major power-producing unit of the Missouri River Basin.

Mr. CANNON. We have previously appropriated funds for that project.

Mr. DOMINY. Yes, sir. We did have an appropriation to start Yellowtail a long time ago, but we had some problems with the acquisition of rights-of-way from the Crow Indians, and construction was held up. Then, later Congress passed a special bill authorizing us to buy the right-of-way from the Crow Indians at the rate of $2.5 million, which we have done. Under that special bill the Indians

were also given the right to sue us for additional amounts if they felt they were justified, and they have filed suit.

But we have the right of entry now and, therefore, we are ready to undertake the construction of the Yellowtail Dam.

Mr. CANNON. All difficulties of that character have been resolved?

Mr. DOMINY. Yes, sir. It is ready to go now as far as the acquisition of the rights-of-way are concerned, the engineering suitability of site, and so forth.

Another project in the new starts will be a major power producer and that is the Curecanti unit of the Colorado storage project. This ultimately may consist of three dams. At the moment the authorization has already been approved in accordance with the requirements of the Colorado Storage Project Act for two dams. The new start is limited to one dam—the first of the two-dam plan—and then we will continue to study the third dam. If it turns out to be a feasible addition it, too, would be authorized for later construction.

Mr. CANNON. These will eventually produce revenue which will cancel the obligation?

Mr. DOMINY. Yes, sir; both the Yellowtail and Curecanti, with the exception of small flood control, recreation, and fish and wildlife allocations which are nonreimbursable, would be repaid in full with interest on the power allocation and the irrigation allocation would be repaid, but without interest.

HISTORY OF POWER-PRODUCING PROJECTS

Mr. CANNON. What has been your experience and what can you tell us of the history of the power facilities you have installed? Have all of them been successful? Have they produced sufficient power to warrant their construction, and has the income from them contributed to amortization of the cost of the projects?

Mr. DOMINY. Well, I think in general the answer is an unqualified "Yes," and that the power features that have been constructed have not only repaid the allocation to power, with interest, over a 50-year period, but they have also been drawn upon to retire a substantial portion of irrigation costs beyond the water users' ability to pay.

There are a few of the older power features that were constructed in the early days as part of a project that under today's standards it would not pay to modernize and keep in production, such as the Lingle plant on the North Platte River. This was a small powerplant that was built in 1906 to 1910 when the North Platte project was first built. It did produce power and is still capable of doing so but at a rate that is not competitive with the Missouri River Basin large power dams. So, we are retiring that one.

Mr. CANNON. But, it has been amortized by this time?

Mr. DOMINY. Yes, sir, by this time it has served its purpose and it is being retired.

I have in mind another one, Angostura. I cannot visualize that one staying on the line forever either. It is a small one, and was justified when it was built, but whether it would be rehabilitated once it had run its first period of usefulness or not, I could not say, because it is a very small relatively high cost unit.

MUNICIPAL AND INDUSTRIAL USES OF WATER

Mr. CANNON. I see you are providing water here for municipal and industrial purposes.

Is the Government to be fully compensated?

Mr. DOMINY. Yes, sir; indeed. In every case where there is a municipal or industrial allocation from our multipurpose projects, that is repaid with interest. As a matter of fact, on some of our projects like in the Central Valley we visualize there that the municipalities will do the same as the power users—they will not only pay the initial allocation with interest, but they will continue to pay some on the subsidy for irrigation.

Mr. CANNON. On all projects which the Government is constructing under this bill which provide for irrigation, power, or water for municipal and industrial use the Government is to be repaid in full by the beneficiaries?

Mr. DOMINY. That is exactly right, Mr. Chairman.

Mr. CANNON. Off the record.

(Discussion off the record)

LOAN PROGRAM

Mr. CANNON. How successful would you say your loan program has been?

Mr. DOMINY. I think the loan program has been very successful. This program gives the small project area, whether it is a new project or an existing one in need of rehabilitation and modernization, a chance to participate without going through very complex procedures that we necessarily must follow on our major and more complex projects.

Mr. CANNON. You have incurred no losses under this program?

Mr. DOMINY. Well, it is so new, Mr. Chairman, that we do not have any experience record on repayment, but we are confident that these projects that are being approved and are under construction are engineeringly sound and economically feasible and that the repayment arrangements which are agreed to in advance of construction are realistic and well within the ability of the lands to repay. We do not anticipate any problem whatsoever. This has been a very popular program.

Mr. CANNON. You expect to be fully reimbursed, with interest, on every loan you have made up to date, and every loan you propose to make with the funds requested in this bill?

Mr. DOMINY. We must be repaid, but without interest, on any small project loan that is identifiable as irrigation.

Mr. CANNON. It is not fully reimbursable?

Mr. DOMINY. Well, it is fully reimbursable under the Reclamation law concept—but repayment is without interest on the capital investment.

Mr. CANNON. We are paying the highest interest rates ever paid for money we provide for these loans, and we cannot afford to loan it unless we are certain to get it back, with interest.

Mr. DOMINY. Well, I should have qualified my statement to say that the Small Project Act, operating like the general Reclamation law, recognizes that these projects are interest-free as part of the

national program of subsidization to get the economic value from the project, but any of it that is allocated to power would be repaid with interest and, of course, any flood control is nonreimbursable.

We have had very small allocations to anything other than irrigation under the loan program under which we have been operating.

OUTSIDE EMPLOYMENT OF BUREAU PERSONNEL

Mr. CANNON. Last year we had a rather lengthy discussion about outside employment by the Bureau.

The committee was so impressed with it that they made note of it in the report when it was submitted to the House.

What has been done along that line up to date?

Mr. DOMINY. Well, Mr. Chairman, I recall very well the committee's considerable and understandable interest in this subject last year and as was made known to you then the matter had been referred to the Justice Department for a detailed examination to ascertain whether any of our employees were actually in violation of the Federal Code. That investigation is still in progress.

Mr. CANNON. As you will recall from last year's discussion the matter involved two phases; one was that employees of the Government were taking outside work to supplement their Government income, taking on additional responsibilities to those they had under their civil service employment by the Department, and the other was bringing in outside engineers to do the work which should be done by our own engineers. Taking the first phase of it, to what extent have you found your employees taking outside work?

Mr. DOMINY. There were a number of our engineers, as I reported last year, occupying themselves on their time off, on weekends and on annual leave, with employment for consulting engineers doing technical work with which our employees were well qualified to assist.

To our own satisfaction, Mr. Chairman, we are convinced that they were not doing work with Government materials or on Government time. However, because of the nature of the possible conflict of interest under the Federal Code, as I said a moment ago, the Justice Department is undertaking a complete investigation. That investigation still is in progress.

Mr. CANNON. Have you taken any steps to discourage it?

Mr. DOMINY. I want to give you the whole story, Mr. Chairman.

Meanwhile, within the Bureau and the Department we have taken very definite steps to curtail and put this outside work activity under very close controls.

We haven't issued the final departmental regulations on it as yet, but while that is pending we have put into operation control procedures, dated March 30, 1959, which were in effect at the time we testified last year and we have kept this in effect since that time, pending issuance of the final departmental regulations.

The limitations prescribed are, first, outside work not involving technical skills used in regular Bureau duties may be approved provided it is not in conflict with any related Department or Bureau regulation, and of course does not interfere with duties in the office; second, outside work which does involve technical skills used in regular Bureau duties may be approved only for employees at Grades GS–11

and below—the lower grade employees—the surveyor, for instance, who surveys for us and who wants to work for a real estate firm to survey some city lots on Saturday afternoon. We sometimes approve that for our Grade 11's and below; third, a time limitation of 15 hours per week is imposed on all work approved under either one or two above; and fourth, outside work of any nature is prohibited on a specified list of projects and any other (*a*) Federal projects, (*b*) projects financed from foreign aid funds, (*c*) projects requiring licenses or other forms of permission from the Federal Government, (*d*) projects for which Federal financing is sought or is to be sought, and (*e*) any other project in which there is or may be direct or indirect Federal interest.

Mr. CANNON. You have in advance alerted every employee to the fact that this situation is under consideration?

Mr. DOMINY. Yes, sir.

Mr. CANNON. I do not think it would be fair for you to take arbitrary action in instances in which the employee had not been warned or was not fully aware of the situation in advance, otherwise many of them might consider it all right to go ahead. It would not be fair to take action unless they had been fully notified in advance.

Mr. DOMINY. I feel, Mr. Chairman, that we have put this under control.

Mr. CANNON. You think that none of your engineers are now working for outside interests which are specifically concerned in Government work?

Mr. DOMINY. We are confident that they are not.

Mr. CANNON. We trust that you will continue your investigation of this matter.

EMPLOYMENT OF OUTSIDE FIRMS

Mr. DOMINY. Yes, sir. The second phase of your question went to the Bureau practice in employing outside firms or individuals to do design work or engineering work in connection with the development of our projects.

Design work of an unusual nature for which the Bureau is not normally staffed, such as design of a dredge or a tugboat are obtained on a negotiated contract basis consistent with established policy that professional services shall be obtained by negotiation. The majority of the Bureau's design work is performed by our own staff of technical engineers, supported by our own laboratories, scientists and technicians in our Denver office.

We do contract for furnishing maps through aerial survey methods on a competitive bid basis, for example, but surveying requiring professional services in the performance of the work is done by the Bureau. We have had no occasion to engage in a contract for surveying or professional services.

Exploratory investigations including test pits and subsurface drilling are usually obtained on a competitive bid basis, although the Bureau in some inaccessible areas maintains drill crews to do this work. Bureau drill crews do only a small part of the total subsurface investigations.

I think in general, Mr. Chairman, we employ outside firms and outside engineering skills only to the extent that that is obviously in the interest of the Government and to carry out the program more

economically, but we do use our own trained forces for the great majority of the engineering work which we perform.

Mr. CANNON. You would not say that you lack sufficient trained men to carry on your work under ordinary circumstances?

Mr. DOMINY. No, sir.

RECREATION ON BUREAU PROJECTS

Mr. CANNON. The committee notes that much of the agitation for public works these days, while ostensibly for flood control and navigation, is really for recreation purposes.

As you know, recreation facilities are permissible only in connection with and as an adjunct or supplementary to work for which there is real need in flood control and navigation. How much of your total budget is for recreational facilities and to what extent is recreation counted in computing your benefit-to-cost ratio?

Mr. DOMINY. I will say in general that there is a very, very small percentage of the Bureau's work that is allocated to recreation and, of course, up until very recently there was no such thing as allocating any part of the cost to recreation or fish and wildlife on any of our projects, even though they enhanced a great deal the opportunities within any given region for recreation and fish and wildlife activities. Assistant Commissioner Palmer has worked up some material dealing with this recreational aspect of our program and I think he can give you the information that you seek, Mr. Chairman.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. To what extent does the Department react to that sort of application?

Mr. PALMER. Mr. Chairman, may I hand in a statement that gives a relatively full account of this and then may I for the record now answer some of the questions you have raised?

Mr. CANNON. If you will.

(The statement referred to is as follows:)

RECREATION ON RECLAMATION PROJECTS

Recreational use of Bureau of Reclamation reservoirs has developed into a major subsidiary benefit to the prime purposes of reclamation construction. It may be appraised as one of the many uses embodied in the multiple-purpose concept of water resource development.

While the Bureau of Reclamation is not a recreation organization, public demands for recreational use of Bureau constructed reservoirs has become tremendous. During the calendar year 1958 there were approximately 19.5 million visitor-days of use reported at the 163 Bureau of Reclamation reservoirs in the 17 Western States. Preliminary indications are that the number was exceeded by about 2 million during 1959 for a total of nearly 21.5 million visitor-days. During the 4-year period of 1955 through 1958 the number of visitor-days at reclamation reservoirs increased over 100 percent. From all indications, this recreational use will continue to increase in the years immediately ahead. The Bureau of Reclamation, except in specific instances, has little legislative authority with which to meet this vastly accelerated demand.

Except where specifically authorized, it is Bureau of Reclamation policy, under existing legislation, to construct only minimum basic facilities at reclamation reservoirs for public use whenever such construction is administratively determined to be authorized and necessary. Administrative determination is based on the criteria that such facilities are required to protect the health and safety of the visiting public or that they are necessary to protect or preserve Federal property. The extent and type of public use facilities which can be constructed

under this policy are based on adequate justification of what is reasonably required to protect the public and Federal property involved. Only those lands which are clearly needed for limited public use and reasonable access are acquired by the Bureau of Reclamation under this policy.

One major problem emerges—unless specifically authorized as nonreimbursable, public use facilities constructed under present policy are reimbursable and the costs are repaid to the Government by the project water or power users.

During the past decade Congress has specifically authorized nonreimbursable recreational developments on 19 specific reclamation projects for which funds have been or will be provided.

It is Bureau of Reclamation policy to transfer reservoir areas, wherever possible, to other Federal, State, or local governmental organizations for the administration and development of the recreational reservoirs.

Recreational areas created by reclamation projects which are determined to be of national significance are transferred to the National Park Service for administration and development. Areas within national forests are by memorandum of agreement transferred to the U.S. Forest Service. Appropriations for recreational development in such areas may be made directly to the administering agencies.

Wherever possible areas of less than national significance, and outside national forests, are made available to State and local governmental agencies for administration and development of the recreational resources. Of the 163 Bureau of Reclamation reservoirs in operation in 1958, 28 were administered by the Forest Service, 10 by the Bureau of Sport Fisheries and Wildlife, 6 by the National Park Service, 1 by the Bureau of Indian Affairs, 48 by State agencies, 11 by county agencies, 25 by water users' organizations, and 34 by the Bureau of Reclamation.

The extent and quality of recreational facilities such as campgrounds, sanitation facilities, picnic tables, boat launching ramps, and public boat docks on reservoir areas administered by other agencies range from almost total absence to excellent. In those areas administered by the Bureau of Reclamation recreational facilities generally are inadequate or nonexistent, although there was a total of about 2.5 million visitor-days reported at such areas in 1958. This poses a major problem. In a few instances transfer to State or local agency could be consummated if minimum facilities were constructed.

The great increase in public interest and use of Bureau of Reclamation reservoirs for recreation has progressed to the point where a reevaluation of past practices and policies, in terms of optimum resource development, appears to be necessary. The concept of the relationship of public use of reservoir areas to project development under which many of the older reclamation projects were constructed have serious shortcomings in today's circumstances. To the extent to which public use demands cannot be accommodated because of the absence of legislative authority, the Bureau of Reclamation is made to appear unresponsive to the public interest.

The following amounts are included in the fiscal year 1961 construction program for recreational facilities:

Project or unit	*Program, fiscal year 1961*
Central Valley:	
Lewiston Reservoir	$31,110
Trinity Reservoir	131,909
Whiskeytown Reservoir	80,000
Crooked River	10,164
Missouri River Basin, Shadehill unit	27,000
Rogue River Basin, Talent division	60,425
Vale, Bully Creek extension	2,000
Washita Basin:	
Fort Cobb division	28,416
Foss division	206,500
Washoe, Prosser Creek Reservoir	5,000
Weber Basin	210,000
Total	792,524

RECLAMATION INSTRUCTIONS FOR CONSTRUCTION OF MINIMUM BASIC FACILITIES AT RECLAMATION RESERVOIRS

Series 210—Land; Part 215—Land Management

CHAPTER 1—LAND USE PLANNING AND ADMINISTRATION—215.1.4

.6 *Construction of Minimum Basic Facilities at Reclamation Reservoirs.* Minimum basic facilities may be constructed at Reclamation reservoirs whenever such construction is administratively determined to be authorized and necessary. The administrative determination must be based, in part, on the criteria that such facilities (1) are required to protect the health and safety of the visiting public, or (2) are necessary to protect or preserve Federal property. Rigid guidelines are impractical as the need for facilities will vary with the at-site conditions of each reservoir. The following general policy guides, however, appear appropriate.

A. There will be free public access to all Reclamation reservoir areas, except for such tracts from which the public shall be excluded for reasons of safety, or of interference with operation and maintenance of project works.

B. Free public access implies uninvited visits by the public. Such visitor use carries with it the responsibility of providing reasonable safeguards to protect the health and safety of the visitor and to protect or preserve Federal property.

C. The Bureau will examine proposals submitted by the National Park Service in accordance with paragraph 215.1.2, with respect to legislative authorization and to problems of administration of the area. A liberal attitude should be taken toward acceptance of recommended basic minimum facilities which will serve protective functions. In making the administrative determination as to facilities authorized and justified at a reservoir area the Bureau will apply the following considerations:

(1) Access Roads and Parking Lots appear necessary not only as an accommodation to visitors but also as a means of preventing the driving of cars over the area indiscriminately with attendant erosion or other problems such as safety.

(2) Sanitary Facilities such as potable drinking water, pit toilets, and refuse containers are essential.

(3) Picnic Facilities such as signs designating particular areas set aside for picnic use so as to avoid unsightly conditions throughout the shore area, or fire grates if needed to prevent hazards elsewhere, are justified. Picnic tables, while desirable, may not be essential.

(4) Boating and Swimming: Construction of a boat launching ramp could be justified only if it appears likely that the public would launch boats indiscriminately with attendant danger to life and property, or if wave action in numerous launching areas might result in bank erosion problems. If unregulated swimming throughout the area would create undue hazards to life, swimming beach with buoys designated by sounds would be in order.

(5) Planting of Trees, Shrubs, and Grass to control erosion and to replace wildlife habitat lost in reservoir construction, is authorized without reference to their recreational aspects. The extent of such plantings should be a matter of sound judgment controlled by administrative determination.

(6) Fencing if needed to protect plantings, control erosion or prevent indiscriminate grazing, and as a safety factor in controlling traffic, could be justified.

D. An administrative determination of the extent and type of minimum basic facilities to be constructed at Reclamation areas receiving public use must be based on a strong justification of what is reasonably required to protect the visiting public and to protect or preserve Federal property. An important factor in the situation, which might properly be included in the justification, is the cost of administering the area in the absence of basic facilities. The added annual cost of patrolling, policing, cleaning up, or repairing damage in an area that has few or no facilities might well exceed a modest investment in minimum basic facilities that would greatly simplify management responsibilities.

Mr. PALMER. Recreation on Bureau projects has developed into big business, as you have anticipated. This year we probably had 21.5 million visitor days on reclamation projects.

Bear in mind the projects were designed and built, and as the Commissioner has already indicated, with little or no authorization to spend Federal money for recreational facilities at those sites. Yet any time you store water in the West, any time you develop a lake or reservoir or control a stream you have built into that operation immeasurable recreational advantages and values. It would be a profligate waste of the public resource not to provide for that use. It has long been Bureau policy to capitalize on this recreational potential wherever possible by working with other agencies, at State, local, and Federal level to get them to assume the responsibility for administering the recreational facilities, or to develop the recreational potential of Bureau projects, fully consistent with the purpose for which it was authorized.

In a number of recent authorizations, also as the Commissioner has indicated, the Congress has approved certain specific appropriations of money. Those total an insignificant amount considering the reclamation program authorized or on the books now. These include what we call minimum basic facilities that are required to protect the health and safety of the occasional visitor but not necessarily to make the area inviting, as you say, as a Palm Springs or something like that to entice the visitor there.

Wherever those facilities or the recreational potential is of sufficient significance to be national in scope, the administration of the area is assigned to the National Park Service and they handle such resources at the Lake Mead National Recreation Area that last year drew 3 million visitors. Where it is less than of national significance we try to get the highest local agency in terms of responsibility that can take over, like a State first, and if they won't, county park boards or recreational areas and if they cannot, we work with irrigation districts or any other public body who can and will take the facility over and administer it.

We have ended up, however, with some 32 project or reservoir areas having high recreational value where we have been unable to get any other agency to come in and take over. So where we have been unable to get any other agency to come in and administer the recreational phases we are forced to do the best we can, with reimbursable operation and maintenance money.

One of those projects is known to this committee very well, the Rio Grande project where we get upward of a million visitor days a year. We have sought diligently to get the State of New Mexico to take over and handle the recreational aspects of that project. They tell us, "When you build the minimum facilities necessary so that we can take it over and run it we will take it over but we are short of money to both build and administer. We could handle it once it was going, but until you get the sanitation problem cleaned up and until you get these minimum facilities in we want no part of it."

This presents a very real problem on some of the older projects, some of those that were built before the Congress made provision for the minimum basic facilities.

By Bureau manual we have defined and described what we will allow by way of minimum facilities. We have tried our best to keep these things that we will do, absent specific congressional directive, down to the absolute minimum—a well to take care of fresh water, a

necessary toilet or two, the spillway section fenced off to prevent people falling into the dam and losing property and life, a boat-launching ramp that would keep that thing under control rather than have many launching boats in areas that would be dangerous either to the dam or facility itself or to the people launching the boats. By and large our entire recreational effort is confined to the preservation of the facility that we have been building for the purpose for which it was authorized and the protection of life and health of the visitor who comes there.

We want to impress upon the committee that we face a real problem in those 32 old project areas where we have not provided the minimum facilities and where the only money we have to work with is fully reimbursable, operation and maintenance money.

If you were an irrigator under one of those facilities, you certainly would take very unkindly to any assessment for operation and maintenance purposes including funds that would be used exclusively to take care of the boating and fishing and swimming and bathing, et cetera, for the people who came there from the cities. So we do have a real problem. We try our best to work it out with States and counties and local jurisdictions; also, with irrigation districts. We have made substantial progress. Recreation is by no means just an incidental byproduct any more; it has gotten to be a major project use. Last year approximately 21.5 million people went to reclamation projects for boating and fishing and swimming.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. On the record.

Mr. PALMER. May I, for the record, complete two other portions of this question that you asked? You asked how we considered recreation in the justification of project construction, in the development of the benefit-cost ratio.

Mr. CANNON. The committee will be glad to have it.

Mr. PALMER. The only item we consider in the benefit-cost analysis dealing with recreation is on a 1-to-1 basis, considering only those specific works that are authorized. For example, if the legislation itself says you can spend $500,000 for recreational purposes, that has to be specifically spent for those purposes and recreation as such bears no portion in the benefit-cost ratio or otherwise of the cost of joint-use facilities, like the dam, reservoir, right-of-way, which make all this recreational wealth possible.

The other thing I overlooked in passing, and I want to add it, is wherever these dams or reservoirs are located inside forest boundaries, by memorandum of agreement with the Forest Service, they handle the recreational development.

Mr. Chairman, we would be glad to insert the list of specific authorizations.

Mr. CANNON. You may include that in the record.

(The list referred to is as follows:)

NONREIMBURSABLE RECREATIONAL-DEVELOPMENT AUTHORIZATIONS

The following list has been prepared to show nonreimbursable recreational-development authorizations. This list includes facilities constructed and under construction, as well as those on which construction has not yet been started.

Region	Project	Authorization			Estimated total
		Public Law	Congress	Session	
1	Columbia Basin	641	84th	2d	$174,560
	Crooked River	992	84th	2d	16,000
	Little Wood River	993	84th	2d	30,700
	Palisades	864	81st		148,000
	Rogue River Basin, Talent division	606	83d	2d	140,000
	Vale, Bully Creek extension	248	86th	1st	60,000
	Wapinitia	559	84th	2d	34,870
2	Central Valley, Trinity River division	386	84th	1st	250,000
	Solano	863	85th	2d	125,000
	Ventura River	423	84th	2d	100,000
3	None				
4	Colorado River storage:				
	Curecanti	485	84th	2d	3,268,450
	Flaming Gorge	485	84th	2d	3,109,000
	Glen Canyon	485	84th	2d	9,241,000
	Navajo	485	84th	2d	834,000
	Paonia	485	84th	2d	7,500
	Florida	485	84th	2d	52,000
	Seedskadee	485	84th	2d	185,300
	Smith Fork	485	84th	2d	29,000
	Vernal	485	84th	2d	93,000
	Washoe	858	84th	2d	58,000
	Weber Basin	273	81st		4,738,000
5	Carlsbad [1]				8,367
	San Angelo	152	85th	1st	68,000
	Washita Basin	419	84th	2d	549,000
6	Missouri River Basin, Garrison division, Jamestown unit.				85,718
7	Missouri River Basin:				
	Frenchman-Cambridge division, Red Willow Reservoir.	505	84th	2d	43,000
	Sandhills Division, Ainsworth unit	612	83d	2d	14,800

[1] Constructed by CCC.

Mr. TABER. Mr. Chairman.

Mr. CANNON. The gentleman from New York.

Mr. TABER. I wonder about this setup. For instance, on page BR–212, part 2–A of the justifications, it shows in the first column on the Weber River Basin project, north central Utah, that there is to be charged off $4,738,000 for recreation out of a total of $97 million, and to be charged off for fish and wildlife $4,548,000. That money comes out of the appropriations that are made for the construction job. There is practically $10 million that is being charged off without its being appropriated for that particular purpose.

Mr. DOMINY. That is correct, Mr. Taber. On some of the more recent projects the Congress has recognized that fish and wildlife and recreation is a very important part of a multiple-purpose nature of the development and to the extent that those facilities are particularly provided for there can be an allocation on a nonreimbursable basis. This particular authorization for the Weber Basin project provided specially for that.

Mr. TABER. You go over on page 217 in that same book and instead of its being $9 million, it only shows a cost of $2,545,000 in prospect on recreation. The two things do not go together.

Mr. DOMINY. It would appear that the allocation to recreation is still estimated at $4,738,000 but according to your table as you point out on BR–217, the total estimated cost is to be $2,545,000.

Do you have anything you can add to that, Mr. Palmer?

Mr. PALMER. Yes. One is the total authorization in terms of allocation and that comes, pursuant to Public Law 273 of the 81st Congress. The second, the lesser amount is the specific work for recrea-

tion. In other words, there is recognition in this instance of values in the joint works that permits the allocation being larger than the specific expenditures for recreation.

Mr. TABER. I still don't understand how you make out on this.

Mr. DOMINY. Mr. Palmer is explaining, Mr. Taber, that the additional costs specific to recreation that would not have been spent at all, to put in the toilets and the boat ramps and picnic tables and maybe an access road just to that part of the reservoir that would not have needed an access road except for recreational use—will total $2,545,000; but in allocating to recreation, the dam and the reservoir and all of the things that make the recreation possible, we take that into account and allocate under this special act more than is actually expended as an additional cost just to recreation—to the extent of the benefits.

Mr. RABAUT. In other words, because you created the pool, et cetera, it comes to the high figure?

Mr. DOMINY. That is right, sir.

Mr. TABER. That isn't what we were told a while ago.

Mr. DOMINY. That isn't what you were told a while ago—because Mr. Palmer was referring to the 98 percent of the reclamation projects that do not have this kind of legislative authority and on those projects any expenditure is reimbursable. If we build a boat ramp, it is charged to the project and has to be paid by the irrigators. If we build a toilet, it has to be charged to and paid by the irrigators.

Mr. TABER. I thought we were told a while ago that all this money that was spent for recreation was charged off.

Mr. DOMINY. It is—but only in specific cases.

Mr. TABER. And was not reimbursable?

Mr. DOMINY. It is in specific cases. Under more modern authorizations we have that authority but under the great bulk of the reclamation projects we have not had that authority and had no opportunity to do it on a nonreimbursable basis.

Mr. PALMER. That was the list I referred to, Mr. Taber, to be inserted in the record, the list of allocations permitted under specific law for recreation on a nonreimbursable basis on identifiable projects.

Mr. RABAUT. Are they similar to the ones you made citation of?

Mr. PALMER. There are others like that.

Mr. RABAUT. That list comprises them?

Mr. PALMER. This list is the list of projects for nonreimbursable expenditures on recreational projects.

1961 REVENUES

Mr. CANNON. What is the total amount of revenues to be generated by the Bureau of Reclamation in 1961? You may supply that for the record.

(The information referred to is as follows:)

ESTIMATED TOTAL REVENUES, BUREAU OF RECLAMATION, FISCAL YEAR 1961

The total amount of revenues to be generated in fiscal year 1961 from all Bureau of Reclamation operations is estimated at $103,500,000 broken down as follows:

Construction and operation and maintenance payments	$11, 800, 000
Power revenues	78, 500, 000
Water rentals	9, 100, 000
Miscellaneous (rental of grazing and farmlands, municipal operation, sale of land, town lots, etc.)	4, 100, 000
Total	103, 500, 000

This estimate includes income arising from facilities constructed by other Government agencies, but where collection and marketing responsibilities have been vested in the Bureau, such as the energy generated at the main stem dams of the Missouri River Basin, the plant for which has been constructed and is operated by the Corps of Engineers but the Bureau of Reclamation markets the power.

Mr. CANNON. Do you have any current problems, Mr. Dominy, of which the committee should be advised?

REVIEW OF BUREAU'S ORGANIZATIONAL STRUCTURE

Mr. DOMINY. One of the things I wanted to mention in this general discussion at the start of our hearing is to report to the committee on what I am doing in studying our organizational pattern in the field and the steps that I have taken to comply with our understanding reached last year when we discussed the result of your committee staff review of some of our regional organizations.

In region 3 we have continued to reduce that staff to fit the workload in that area. For your information, the organizational changes at Boulder City have been completed and we have a further adjustment in turning over the municipality to non-Federal management under Nevada State law and by these actions we have reduced 75 positions from the Federal payroll in region 3. It is a reduction of about $600,000 annually.

In addition, we have continued our study of the organizational problems in regions 6 and 7 and you will recall that last year you urged that we give serious consideration to the possible desirability of combining those two regions into one operating organization.

After the very complete review that we did with our own and the departmental study group and taking into account the very valuable contribution that the committee's review group made, we have decided that at least for the moment—for the next year or two—that we ought to continue to operate in the two regions. But we do have a plan which will accomplish a substantial adjustment in the number of jobs required, even though we have an increasing workload. We have, for example, completely reviewed the organizational structure of both regions and have already approved and put into operation a number of changes and adjustments which will produce substantial savings. In total, we are anticipating that the hard core—the hard core as I look at it, is top management people that are needed whether you have a fairly modest program or whether you have a big construction program—you still need about the same hard core of top management and specialists to hold your work together and give it proper supervision. Now, this hard core of regional employees which represents the permanent staff that is needed to operate the regions—both 6 and 7—under good management will drop from 311 people that were on

the payroll June 30, 1959, to 250 by June 30, 1961. There are 329 positions authorized in this group but only 311 people actually on the payroll. The other permanent employees of the regions that are scattered out on the various jobs around the regions—we had 1,662 people on June 30, 1959, and under this reorganization and to handle the increased workload programed, this will increase to 1,713 by June 30, 1961. In terms of all permanent employees—both the hard core and workload variable groups—the totals will drop from 1,973 on the payroll as of June 30, 1959, to 1,963 on June 30, 1961. Emphasis is also being placed on authorized positions, not necessarily people on the payroll. This is the basis upon which the budget is submitted. The changes contemplated, we believe, will accomplish a saving of about $1,280,000 from the positions financed in the budget for fiscal year 1961. The important figure in terms of over-all management, however, is the 20 percent reduction in the hard core administrative staff on the payroll.

We think this is a pretty good progress report in making more efficient operation in regions 6 and 7 area. It is a tremendously big geographical area and we are reluctant to try to combine and compress it into one regional headquarters. We will continue to study it, however.

In addition to that, we have made a study of region 4 at Salt Lake City, which is the biggest region we have in terms of workload at the moment, Mr. Chairman. Mr. E. O. Larson, who has done a very fine job for reclamation over a 40-year period is retiring effective tomorrow and we are moving an experienced regional director in there to replace him. We have made a study just prior to his taking over so that he would have the benefit of this management study of the organization that the new man is inheriting so that he can have some guidance in setting up as efficient an organization as he possibly can as he gets acquainted with his new territory. We have also just completed a similar management study in region 1 of the Pacific Northwest. Our practice is after the management study is completed to review it with the regional director in charge and then instruct him to put the management suggestions into practice as rapidly as he can work them in. We think this is a very good tool of management and we believe, sir, that we will be able to convince the committee over a period of years that we are actively looking for any waste or any inefficiency in our way of doing business.

WORK SLIPPAGE ON GLEN CANYON UNIT

There are two other matters of general interest that I want to mention. We are a very dynamic organization and our work is very dynamic and certainly we cannot anticipate with pinpoint accuracy 6 months or 8 or 10 months in advance. When this budget was put to bed, so to speak, and sent to the printer last December, the Glen Canyon strike, for example, had not been settled, although we had reason to think it would be settled. It was settled about on the date that we anticipated, but the contractor's earnings following the resumption of work did not get back up to peak levels quite as rapidly as we had anticipated so we are going to have some slippage additional to that which we have pointed out to you in our printed material—the increased slippage is in the amount of about $8,500,000. The Bureau of the Budget has been informed of this further reduction and we are advised that an amendment to the budget is being considered.

NET BILLING PROCEDURE

In addition to that we have run into a problem of purchasing power in fiscal 1960 and there is a supplemental request being considered and the committee may wish to work that out in connection with this slippage item. This is something that I think you could very well consider.

Mr. CANNON. What arrangement have you for net billing on the purchases and sale of power in the southeastern and southwestern power areas that can be applied within the Central Valley project?

Mr. DOMINY. Well, Mr. Chairman, we are delighted to have from our solicitor an opinion that indicates that we could legally, if the committee gave us authority to do so and agreed with us that this is the better way to operate, that we could follow the net billing procedure similar to what the committee has approved to be followed by southeastern and southwestern power agencies. Where we are wheeling and purchasing and selling power to and from a company—instead of them billing us for the full amount of the service they perform to us each month and we in turn bill them for the full amount of the service we perform for them and each have to send money back and forth—that there could be a net billing process so that only one or the other makes the payment. Now, if this were put into effect, Mr. Chairman, we cannot tell you now exactly how much we could reduce our 1961 budget request, if that were in effect, but we do know there would be some less money required because we would not have to be moving money one month over to a power company and the next month they would move it into the general Treasury. We would report all activities to you the same as we do now. It would not be in the nature of a revolving fund or anything like that. It just looks like good business management to do it that way.

The accounts, of course, are always subject to audit. It has worked out very well as I understand it with Southeastern and Southwestern Power Administrations. We would like to, with the committee's approval, undertake to get that into effect so that we could report it that way in fiscal year 1962.

Mr. CANNON. Net billing, then, as practiced in the Southwestern Power and Southeastern Power Administrations would be entirely feasible?

Mr. DOMINY. Yes, sir.

Mr. CANNON. Will you indicate, when the transcript of your remarks come back to you, what saving might be made if net billing were adopted?

Mr. DOMINY. I would like to give you a statement on that for the Central Valley project.

(Note: See p. 35.)

Mr. CANNON. It will be in effect next year?

Mr. DOMINY. Yes, sir.

TRANSFER OF FUNDS FOR PURCHASE OF POWER

Mr. CANNON. Is there any reason why you should not transfer funds needed in this fiscal year for purchase of power in the Central Valley project from the Upper Colorado Basin surplus on the Glen Canyon project?

Mr. DOMINY. No, sir.

Mr. CANNON. If the committee should instruct you to do that?

Mr. DOMINY. No, sir. As I understand it, the Secretary actually has the authority to do that, but any transfers of that nature we certainly want to check with your committee and have assurances from you that you understand it and think it is satisfactory to do so.

Mr. CANNON. I think the committee would unanimously approve such a course and we will now, unless there is objection, instruct you to proceed with that in view.

NET BILLING PROCEDURE

Mr. RABAUT. May I ask a question?

Mr. CANNON. Mr. Rabaut.

Mr. RABAUT. How much money is involved on a monthly basis?

Mr. DOMINY. On this net billing procedure?

Mr. RABAUT. Yes.

Mr. DOMINY. Mr. Bennett, can you give me a rough figure on that?

Mr. BENNETT. It varies annually and it varies also by areas.

Mr. RABAUT. How much money is returned to the Treasury on a monthly basis at the present time?

Mr. DOMINY. Mr. Bennett, do you have it on an annual basis?

Mr. BENNETT. I have it on an annual basis over a several year period.

Mr. RABAUT. Isn't it transferred on a monthly basis?

Mr. BENNETT. Yes. We make and receive payments monthly.

Mr. RABAUT. How much money is sent to the Treasury on a monthly basis?

Mr. BENNETT. For instance, in 1959 from the P.G. & E. Co., Pacific Gas & Electric Co. of California alone, we received for sales and capacity about $2,100,000, so on a monthly basis that would be a little less than $200,000.

Mr. RABAUT. How many similar cases are there?

Mr. BENNETT. In 1958 it was about $5,400,000.

Mr. DOMINY. Total of all companies?

Mr. BENNETT. This happens to be P.G. & E. alone.

Mr. CANNON. The committee, then, will instruct you to adopt the billing system at the earliest date feasible. Is there objection.

Mr. TABER. I do not understand it.

Mr. EVINS. I would like to indicate a reservation. I do not like to disagree with my chairman, but I would like to indicate a reservation.

Mr. TABER. We should leave that until tomorrow. We have to go upstairs pretty quick.

Mr. CANNON. We will again bring up this subject tomorrow.

Mr. DOMINY. I did understand, Mr. Chairman, that the committee——

Mr. CANNON. There is no objection to the transfer? Is there any objection to the transfer? The Chair hears none.

The committee will stand adjourned until 10 o'clock tomorrow.

TUESDAY, MARCH 1, 1960.

Mr. CANNON. The committee will be in order. We will resume consideration of the budget for the Bureau of Reclamation.

We were discussing at our last session the matter of billing. We shall be glad to have you give us any further information on the subject which occurs to you as being pertinent.

Mr. DOMINY. Thank you, Mr. Chairman. Assistant Commissioner Bennett has looked into that a little further since the discussion yesterday and has specific information to give you on that point.

Mr. BENNETT. Mr. Chairman, we have analyzed the situation over the past 2½ years on a monthly basis, looking particularly at the Pacific Gas & Electric Co. of California, which is the utility with which we have probably the largest money dealings. We find that in fiscal year 1958, for example, which was a very good water year, we purchased no power. On the other hand, we paid monthly around $40,000 to $45,000 for wheeling. At the same time we received from P.G. & E. through sales of power to them about $400,000 to $600,000 a month. So on a monthly basis we would receive a net amount from P.G. & E. in a year such as 1958.

The same generalization applied in 1959, although we did have to purchase about $75,000 worth of power in 1959. Nevertheless, each and every month P.G. & E. would have owed us money under net billing.

The situation becomes the opposite when we get into a year such as this one has been, when we have had a very short water supply. We have had to make rather large purchases of power this year. Our record from July through January shows that on the net billing basis we would have owed P.G. & E. more than they owed us up through January.

So I think out of this we conclude that under a net billing arrangement we would be much better off to handle it on a monthly basis. True, in some years that would not be quite so advantageous to the Government as would an annual basis. On the other hand, in most years if we went on an annual basis the net effect would be that the utility would have the use of its money, possibly as much as $5 million, for a whole year before they had to pay us. We do not think that is a good situation. So it should be handled on a monthly basis.

Mr. CANNON. In other words, the whole proposition is a matter of whether the U.S. Government should have this money during the year, or whether its customers should have the money. If it is billed on a monthly basis, the Government would get the money and have the use of the money.

Mr. BENNETT. That is correct.

Mr. CANNON. If we had it on an annual basis, the customer would have the use of the money until the end of the year.

Mr. BENNETT. That is right.

Mr. CANNON. So it would be decidedly to our advantage in an average year to handle it on a monthly basis and the Government have the use of the money instead of leaving it in the hands of the customer until the end of the year on a yearly basis?

Mr. BENNETT. That is correct. Keep in mind, Mr. Chairman, that we would have to amend contracts which we now have. In other words, this would have to be a two-way arrangement. The company

would have to be willing to make these arrangements, and we think they would.

Mr. DOMINY. At the moment, we are paying them monthly and they are paying us monthly. So, to put it on a net billing basis monthly would not change adversely to either party the way we have been operating.

Mr. RABAUT. We are going to continue practically the way we are going now, is that not correct?

Mr. DOMINY. Except with net billing we would not pay them the total of what we owed or they would not pay us the total of what they owed. The person who owed more than they had coming in would make the net payment.

Mr. RABAUT. They would just pay the difference. There would be one check.

Mr. DOMINY. That is right.

Mr. TABER. It has been along toward the end of the year before you had a settlement in days gone by?

Mr. DOMINY. We have been settling monthly, Mr. Taber.

Mr. TABER. There would be no change, then.

Mr. DOMINY. Except that on a net billing procedure, there would be just the one check.

Mr. RABAUT. A one-check transfer by the one who owes the money.

Mr. BENNETT. Let us take a specific example. Let us take July of 1959. In that month we paid P.G. & E. $42,807. At the same time, they paid us $450,016. Under the net billing they would simply have given us a check for about $407,209. That is all.

Mr. TABER. How long after the 1st of the month is it that you have been getting the settlement?

Mr. BENNETT. As I remember, it is around the 15th. It takes time to read the meters and make up the bills.

Mr. TABER. When you have been getting one check on an annual basis, how long after the——

Mr. BENNETT. Our arrangements under our contracts are all on a monthly basis.

Mr. RABAUT. The suggestion was to make it an annual deal. They looked into it.

Mr. TABER. I do not like that. I would not want to do that.

Mr. BENNETT. We would not, either.

Mr. CANNON. Another advantage of handling this on a net-billing basis would be that we would not have to make appropriations for this purpose.

Mr. DOMINY. Under the net billing procedure, we would not have to have appropriations for our purchase of power—that is true to the extent that we have more credits from a particular company than we have charges.

Mr. FENTON. May I ask, do the industry people wheel a lot of your electricity?

Mr. DOMINY. Yes, sir.

Mr. FENTON. They add a wheeling charge, too?

Mr. DOMINY. Yes, sir.

Mr. FENTON. The reason I ask is that you just mentioned the wheeling on the other side.

Mr. DOMINY. Yes. We have two accounts with P.G. & E. We owe them during the year for wheeling and for power that we purchase from them to firm up power to our customers from time to time.

Mr. FENTON. Do you have much wheeling?

Mr. DOMINY. Indeed we have a good many wheeling arrangements with Pacific Gas & Electric Co. and the power companies in the Missouri River Basin and elsewhere.

Mr. TABER. If we have this net billing proposition instead of the present arrangement——

Mr. RABAUT. One check instead of two.

Mr. TABER. I know, but the trouble with the thing would be that unless you got a report both ways after the transaction takes place, we would not have any check at all on what the result had been. I would like to have it pretty well understood that there would be a report on the billing to the committee.

Mr. CANNON. The report is projected, and it is also checked by GAO.

Mr. TABER. That is all right.

Mr. CANNON. Is there objection? The Chair hears none.

Mr. TABER. I do not want to see the thing built up where there is a temptation on the part of the Government officials to neglect the thing and let it get away from them and out of hand.

Mr. RABAUT. It is all right. We will get a check on it.

Mr. CANNON. We will print in the hearings each year the projection for the year just past and the projection for the year to come.

Mr. TABER. Only the projection for the past year will be actual, and the one for the coming year would be estimated.

Mr. CANNON. That is right.

Mr. TABER. Showing both the accrual to the company and the accrual to the Government.

Mr. CANNON. Both purchases and sales, and a check regularly by the GAO.

Mr. TABER. Yes.

Mr. RABAUT. Mr. Chairman, how would that work out?

Mr. DOMINY. We would have to give you our projection on the basis of the water year.

Mr. CANNON. It would be the average water year.

Mr. DOMINY. We would have to use the average water year unless our snow survey estimates gave us something more accurate to go on. In California the snow survey is not too important, because a good part of the water is from seasonal rainfall. If the rain does not come, we do not have the water.

(Off the record.)

Mr. DOMINY. Actually, Mr. Taber, this does not change our responsibilities under the Government procedure in any way. We would account for the transaction exactly as we do now.

Mr. CANNON. But the advantage is that this committee has the opportunity to see and judge month by month exactly what is being done.

Mr. DOMINY. We would be very happy to supply such report as the committee desires.

Mr. BENNETT. Let us be sure we understand one point, now. This will not completely relieve the need for appropriation, because we have some contracts, of course, where we are paying wheeling, but we are not getting any revenues back from the company. On the other hand, we have the situation where we are paying some wheeling and also selling power. But in all instances the payout is greater than the receipts. So it will relieve us of the need for appropriation only in those cases where the revenues do exceed the costs.

Mr. TABER. That all has to be submitted every year to the committee.

Mr. BENNETT. Yes, sir.

Mr. CANNON. Continuing our inquiry on "General investigations" from yesterday and your general statement before the committee at that time, the gentleman from Michigan?

Mr. RABAUT. No questions.

Mr. CANNON. The gentleman from Ohio?

NEW CONSTRUCTION STARTS

Mr. KIRWAN. I see you have six new starts. When were those projects authorized?

Mr. DOMINY. The Yellowtail project was authorized as part of the Missouri River Basin authorization in the Flood Control Act of 1944. The Curecanti project was authorized as part of the Colorado storage project, and the authorization was completed by a report submitted by the Secretary to the President and to Congress last year. That report was part of the authorization requirement. The Vale, Bully Creek, project was authorized by the act of September 9, 1959. That was a special bill put through Congress this last session. The LaFeria, Tex. project was also a special bill, the act of September 22, 1959.

Mr. KIRWAN. How many were authorized before last year?

Mr. DOMINY. The Yellowtail and Curecanti were both authorized before last year, as well as the Florida project, the small participating project.

Mr. KIRWAN. You did not make a request for any new starts last year. Now we have a much larger debt, and yet the Budget Bureau is now making a request for six new starts. I am interested in why no new starts were requested last year.

Mr. DOMINY. The Secretary has released a statement on that in answer to questions from the press, in which he pointed out that the budget for 1961, under the analysis of the Bureau of the Budget, shows an increase in revenues over the anticipated outgo, which was not true in fiscal 1960. There is a statement here from the Secretary covering this point which I would be glad to put into the record at this point if you desire.

Mr. KIRWAN. You may put that in the record.

(The document referred to follows:)

Question. Mr. Secretary, why did you decide to propose six new starts this year after 3 years of abstinence?

Secretary SEATON. Well, I can answer that for you. Last year we were operating on a very, very thin margin for balancing of the Federal budget. If you will recall, that on the basis of the original figures which the President sent to the Congress, the Bureau of the Budget forecast a budget surplus of $600 million, with a considerable number of ifs provided. And one of those ifs was if the gross national product continued to rise, if there were no national defense emergencies requiring expenditures of funds over and above the budget, and all that sort of thing.

Now, an emergency did arise. The case of the steel strike is a perfect example, to say nothing of the aluminum strike, strike in cans, the strike in the copper mines, and certain other industrial disturbances.

A month ago, fiscal experts in and out of the Government, including some very distinguished experts in the Congress of the United States, generally agreed that there would be a budget deficit for fiscal 1960, and those estimates ran as high as $1 billion deficit. Now, 2 weeks ago, I believe, or 10 days ago, because of the settlement of the steel strike, they recapped their figures, and the Bureau of the Budget now believes that we will have a balance of approximately $200 million for fiscal 1960, which, you will recognize, is a third of the projected surplus when the budget was first submitted to the Congress.

In that kind of a fiscal and economic climate, the President decided that he would not recommend any new construction starts for the Corps of Army Engineers or the Bureau of Reclamation, both of which were then carrying one of the largest construction programs in the entire history either of the corps or of the Bureau. I supported that decision publicly.

Now, this year the President is forecasting a budget surplus on the basis of the one he submitted to the Congress of $4.2 billion. We have got a great deal more room to carry on the progress of the Bureau of Reclamation than we had a year ago, so far as the whole Federal budget is concerned.

Now, specifically as to the Bureau itself, dealing now with matters wholly pertinent to the Department of the Interior, in the interim between the fiscal 1960 and fiscal 1961, our construction program on going work continued and brought us further along down the road to where some of these costs will begin to taper off; in other words, the total obligations of the taxpayers of the United States is reflected by the Bureau of Reclamation budget; and that has been helpful to give us room to make recommendations for new starts.

In addition to that, through the very unfortunate fact that we had a prolonged strike at Glen Canyon, one in which I took no personal enjoyment whatever, and had weather difficulties and associated difficulties at Flaming Gorge,—the Glen Canyon and Flaming Gorge are two of our largest projects—we did not expend in fiscal 1960 nearly the amount of money which we were obligated to spend. And that saving, if you can call it that, is also reflected in our own bookkeeping posture here within the Department.

Mr. KIRWAN. I think the gentleman representing the Bureau of Reclamation is as fine a head as they ever had, and I mean that with sincerity.

Mr. DOMINY. Thank you, sir.

Mr. KIRWAN. But I cannot understand how the Budget Bureau operates. We had some fine examples of its work in the estimates submitted for the Interior bill. They wanted to pay $80 an acre for 1,200 more acres down in Arizona for the Petrified Forest National Monument where we have 90,000 acres now. We have 1,300,000 acres down in the Everglades, but the Budget Bureau requested $450,000 to buy still another 30,000 acres.

To think that the Budget Bureau would make such a request of the Congress at this time with all the urgent requirement we have. I am not condemning you or any of the men who are here. I am simply trying to point out that if they would waste the taxpayers' money on items of this nature in these critical budget times, why should we place so much emphasis on whether or not the Budget Bureau has recommended a public-works project? Yet one of the key questions seems to be, "Has the Budget Bureau recommended it?"

That is all, Mr. Chairman.

Mr. CANNON. The gentleman from South Carolina.

Mr. RILEY. How much money is involved in these six new projects, Mr. Dominy?

Mr. DOMINY. The first year, Mr. Riley, requires only a little over $6 million to inaugurate the work on these six new starts, but the total——

Mr. RILEY. What is the ultimate cost?

Mr. DOMINY. The ultimate total is about $217 million to complete the six new starts that are being proposed this year.

Mr. CANNON. Mr. Taber.

Mr. TABER. What are these starts on—land that can be irrigated, or mostly places where there is no irrigation or reclamation in sight?

Mr. DOMINY. In the case of the Vale project, this is a storage reservoir to add a water supply to an existing project. The Vale project in Oregon has been in operation for a long while. It has experienced frequent water shortages. Yet there is a stream coming down through the project that sometimes floods and causes quite a little damage. This would build the dam to augment their water supply and control these local floods that cause serious trouble.

The LaFeria division is also an existing project built with private capital in Texas. They have been irrigating for a long while. They need rehabilitation of their system. This special act authorizes the Bureau of Reclamation to participate to the extent of the total esimate of $5,772,000, with $500,000 in the fiscal 1961 budget year to work with them on this existing project.

Mr. TABER. What do they raise on these projects?

Mr. DOMINY. The Vale, Oreg., project is a general irrigated area which produces some sugar beets and a great deal of forage crops for livestock production, and some row crops like potatoes and beans, and things of that type.

Mr. TABER. Do they plant considerable corn and barley and oats?

Mr. DOMINY. Very little, except for feed to their livestock industry.

Mr. TABER. There is a very considerable livestock industry there, is there not?

Mr. DOMINY. Yes, sir.

Mr. TABER. How about the other projects?

Mr. DOMINY. The major crops being produced in the LaFeria division are citrus, grains, vegetables, and cotton.

Mr. TABER. And cotton?

Mr. DOMINY. Yes. They are already in production, and so is the Vale project.

Mr. TABER. There will be no reimbursement to the reclamation fund as a result of these operations, will there?

Mr. DOMINY. Yes, they are both fully reimbursable.

Mr. TABER. You mean they are reimbursable without the reclamation fund?

Mr. DOMINY. That is right, sir.

Mr. TABER. The land in these irrigation projects produces just about the same sort of stuff as the lands through the rest of the country where there is not any irrigation?

Mr. DOMINY. Except in general in the irrigated areas of the West we are producing a great deal of the specialty crops for the United States.

Mr. TABER. What do you mean by specialty crops?

Mr. DOMINY. Citrus, green leafy vegetables, winter melons, and vegetables.

Mr. TABER. The citrus is just as much an overproduction proposition as the other crops, I understand.

Mr. DOMINY. Sometimes there are temporary gluts on the market, that is true, but citrus is not like wheat or corn or cotton, which can be stored indefinitely.

Mr. TABER. They store up from year to year great quantities of canned stuff.

Mr. DOMINY. Yes, canned juices, that is true.

To continue to answer your question, the Almena unit in Kansas is part of the Missouri River Basin project. This has a municipal and industrial water supply for the city of Norton, Kans., as well as irrigation for 5,550 acres. This land at the moment is primarily in wheat. It is in the great plains area of Kansas, and under irrigation it would go out of wheat and into feed crops and alfalfa and some row crops. This is the history of that area under irrigation, because wheat does not lend itself to be grown successfully under irrigation farming.

YELLOWTAIL UNIT

The Yellowtail unit, which is the big one that we will be starting in the new starts here authorized, is the power feature of that unit. It would be the big multiple-purpose dam and powerplant and switchyard.

Mr. TABER. You just do not have any irrigation there at all?

Mr. DOMINY. Irrigation eventually would be included by reason of having built the Yellowtail Dam. There is the Hardin unit in Montana below the dam, and a group of Yellowstone pumping units below Hardin on the river which would be made feasible by reason of this storage at Yellowtail Dam. These are not being included for a new start this year, but with the construction of Yellowtail Dam they would come along in later years.

Mr. TABER. You mean they would get water from Yellowtail?

Mr. DOMINY. Yes, sir, by reason of the storage behind Yellowtail Dam, it would be possible then to have this irrigation later.

Mr. TABER. How much of the cost would be irrigation and how much of it would be something else?

Mr. DOMINY. Do you have the allocation on Yellowtail Dam, Mr. Bennett?

Mr. BENNETT. Out of the total Federal obligations for Yellowtail of about $107½ million (which with net property and other transfers results in a cost of $109,300,000), the commercial power allocation is $65,483,000, including interest during construction of $3,562,000, flood control and navigation, $6,261,000, fish and wildlife, $608,000, recreation, $500,000, irrigation, $24,530,000, and interest-free pumping power allocation $15,480,000.

Mr. TABER. But that would not come until after the construction of the dam was completed?

Mr. DOMINY. This is an irrigation allocation to Yellowtail Dam because it will contribute that much to the irrigation feasibility of these later units like the Hardin and the lower Yellowstone pumping units, which would be brought in as part of the Missouri River Basin plan.

Mr. TABER. How much would it cost per acre to put that in?

Mr. BURNETT. About $550 on the Hardin unit.

Mr. TABER. $550 an acre.

Mr. DOMINY. For the Hardin unit, specific costs under the present estimate is about $550.

Mr. PILLION. As I recollect the testimony on the Yellowtail project, all real estate experts who evaluated the value of the acreage in the Yellowtail area estimated that the scrub land in that area was worth something like $7 per acre. If the other acreages are anywhere near the same value, it seems awfully strange to be paying $550 to irrigate lands which are worth somewhere in the neighborhood of $7 per acre.

I am sure that cannot be the right answer, but that is as I recollect the hearings in the Interior Committee on the value of the acreage which was taken for the dam, and of course we wound up paying $2¼ million for—how many acres was that? Thirty thousand?

Mr. DOMINY. About 30,000.

Mr. BENNETT. I think we had better add to the figure which was given a bit ago. When you include the areas downstream also, you have a total to be irrigated of about 74,750 acres. The figure given went only to the specific costs for the Hardin unit.

Mr. BURNETT. That is correct.

Mr. BENNETT. When you add in the Yellowstone units, the cost per acre is about $320 for the Yellowtail irrigation allocation.

Mr. PILLION. If the land is worth anywhere near $7 an acre——

Mr. DOMINY. Let me comment on that.

Mr. TABER. Let me comment a minute first.

The gentlemen have taken less than 5 minutes to depreciate the land from $550 an acre down to $320. I would like to understand how they get that.

Mr. DOMINY. Let me take a minute here now. In the first place, Mr. Pillion, the $7 figure you have reference to was in the debate and discussion of the value of the land we were taking for reservoir purposes on the Crow Indian Reservation. This is mountain pasture-land and steep canyon country. It had practically no value except for powersite purposes. The Congress did direct us by legislation to pay the Indians some $2½ million for the damsite and the reservoir area on the reservation when our own appraisal of it at current market value of grazing land was about $33,000 or $34,000.

The land of the Hardin irrigation project is not mountainous grazing land. It is benchland above the river. It is being farmed now in dryland agricultural pursuits. It has value as deep, level farming land.

The lower Yellowstone units which lie below the Hardin unit in small blocks along the river are also good agricultural lands which are presently being dry-farmed and, when put to irrigation use, would be changed from a wheat culture primarily into alfalfa and livestock production.

The estimate which was given first, Mr. Taber, referred only to the Hardin unit specific costs which is the large single block to be developed for irrigation. That was a figure estimated at about $550 per acre of costs to deliver the water to the land. There would be in addition an assignment of costs from Yellowtail unit for benefit-cost purposes of about $300 to $350 per acre.

Mr. TABER. There would not be any charge for the use of the water which had been stored?

Mr. DOMINY. Yes, there would be an allocation of their share of the cost of the storage which we referred to a moment ago for benefit-cost purposes. As Mr. Bennett points out, the irrigation allocation of Yellowtail costs to the lands as now contemplated for irrigation is somewhere in the range of $300 to $350 an acre.

Mr. PILLION. Of course, the present value of these lands would probably be in the neighborhood of $50 to $100 an acre, would you say?

Mr. DOMINY. Yes, I would say most of that wheatland, Mr. Pillion, in Montana, Wyoming, and North and South Dakota, is now selling up to $100 and more an acre.

Mr. PILLION. Place $350 of Federal funds into it, and it would then have a total cost per acre of $450, say, when the irrigated lands in the same area I am sure are not selling anywhere near $450, are they?

Mr. DOMINY. Some of the best of it might get up to that figure. I would say on the average, in that climate, with the length of the growing season and the types of crops they can grow, you could buy irrigated land from $250 to $400 an acre.

Mr. PILLION. An average of $200 or $150 or $300 would be good?

Mr. DOMINY. I suspect it would average out $300 an acre for irrigated land, or more.

Mr. PILLION. So when you place $350 of Federal funds into it, you just cannot economically get your money back as of the present time.

Mr. DOMINY. That is absolutely true. If you were banking in that area you would not bank on that basis. But under the reclamation program, the cost is returned to the Treasury, except for the interest-free element of the irrigation allocation, and this does give a permanent stability to the economy of the area wherever you irrigate these dry, semiarid areas.

IRRIGATION PROGRAM POLICIES

Mr. PILLION. Of course, the policy of increasing irrigated lands at high cost, adding more surpluses at the same time you are spending $400 million to $500 million or $600 million to take other agricultural lands out of production, certainly is a very contradictory and conflicting set of policies.

Mr. DOMINY. Indeed it is.

Mr. PILLION. It is a policy which adds to our agricultural problems, our agricultural surpluses. It adds to our fiscal difficulties. Would you not say that is all true, Mr. Commissioner?

Mr. DOMINY. I think that is undoubtedly true. Irrigation development to the 17 Western States is absolutely essential to their continued growth and prosperity. This we recognize.

Mr. PILLION. Yes. Would you say that is true in spite of the fact that it is uneconomic and that the other States are unable to fiscally carry that program, and it is becoming a burden to the other States?

By the way, Mr. Commissioner, I am not criticizing you personally in any of these questions. I think you are doing a very fine job. I just like to point up where the policies are leading us nationally and internationally.

Mr. DOMINY. Mr. Pillion, this is a very debatable point. Certainly it is proper for this committee to weigh carefully these matters which you bring up. With the exploding population trend we have now, it is interesting to note that some of the Western States, particularly the Great Plains, are not keeping pace. Whether or not it is in the national interest to continue this program is, of course, something for the Congress to decide. I feel that to strengthen the economy of any area of our Nation is good for the whole.

Timing is the thing you are questioning, whether at this particular moment in our Nation's economy——

Mr. PILLION. That is right.

Mr. DOMINY. We ought to be expanding and continuing this program, as contrasted to what we did 20 years ago or as contrasted to what we might do 10 years from now.

Mr. PILLION. As a matter of fact, Mr. Commissioner, would it not be better to permit some of this idle land to lie still without working it at the present time, and you would have better land if you irrigated it and made it produce 10, 15, or 20 years from now as we need the extra land?

Mr. DOMINY. Most of these lands we are discussing here in these particular projects are already being farmed. They are being farmed largely in wheat, except for the LaFeria project and Vale, which is already under irrigation production.

The net effect of these particular new projects would not bring additional land into cultivation. It would bring into production a greater variety of crops.

Mr. PILLION. And a greater surplus.

Mr. DOMINY. They would not be producing the crops that are in surplus which are causing us the really burdensome problem.

Mr. PILLION. That again, Mr. Commissioner, is a debatable point. If you assume that the whole United States is one agricultural economy and farmers can and do shift very readily from one crop to another, all the way from cotton to winter wheat, then what we have is a total agricultural surplus, and any additional agricultural tonnage will add additional surplus because a farmer can shift from one thing to another.

Mr. DOMINY. This is undoubtedly true.

Mr. PILLION. As I say, what I am saying here should not be construed as a personal criticism of your administration of the Bureau of Reclamation, which I think is a very good administration.

NEW STARTS

Mr. DOMINY. Thank you, sir. I appreciate that.

Mr. TABER. Could you give us the other three projects?

CURECANTI UNIT

Mr. DOMINY. Yes. I have covered all now but two. The Curecanti unit is another one of the primary dams—primarily for power and storage—of the Colorado River storage project. There again there will be no land brought in specifically in connection with the Curecanti unit. It is a power dam and storage dam. It will help make possible other participating projects for irrigation later on.

FLORIDA UNIT

The last of the six we have included for new starts is Florida, which is a small participating project of the Colorado storage project for a supplemental supply. In the Florida unit 13,720 acres of land are being irrigated with inadequate supply, and 5,730 acres of new land would be served. The principal crops at present in this area—and we think they will continue to be of this same general nature—are clover, irrigated pasture for livestock, and small grains for livestock feeding.

Mr. TABER. How many acres do you expect when you get all through?

Mr. DOMINY. On that one, we would have a total acreage for service of 19,450 acres, of which 13,720 are already irrigated but need a supplemental supply of water, and 5,730 acres would be additional acres brought in.

Mr. TABER. How much will it cost you?

Mr. DOMINY. The investment on this project is estimated at $464 per acre, the irrigation investment.

Mr. ANDERSEN. May I ask a question now, Mr. Taber?

How can you afford to put $464 an acre into irrigated lands used primarily for the production of grain, alfalfa, and pastures?

Mr. DOMINY. As we agreed here a moment ago, if you and I as private investors were doing it, we could not afford to; but as a basin-wide approach to improve the economy of an area, and with the full cost of the investment being returned to the Treasury, except for the subsidy of interest, which has been historical as a reclamation aid from the rest of the country to help develop this arid and semiarid area and give it a stable economy, we think it is fully supportable. The record of our projects all through the West stands as very excellent testimony to the stability of this kind of project for the good of the Nation.

Mr. ANDERSEN. Saying we concede that up to this point we have been pursuing the right policy in opening up certain areas of the West, I wonder if there are not ahead of us huge economic problems of the West where we as farmers cannot secure a proper return for what we produce. I wonder if perhaps those economic problems would not call, say, for a 5-year recess in any new starts in reclamation projects.

Mr. DOMINY. I recognize very well, Mr. Andersen, that these are questions which have serious import.

Mr. ANDERSEN. I have been in Congress for 21 years, and up to this point I have supported reclamation and the theory that the folks out West in many communities with which I am conversant should have the opportunity to build up their communities. But for the last 5 years I have seen the income of my farm, which I farm through a tenant, in Minnesota, an old family farm which we have owned since 1901, drop to the point that even on well-established and well-operated farms producing basically corn, soybeans, flax, alfalfa, and such, in southwestern Minnesota, they cannot even make 2 percent on their investment. I have seen my income on my equity in that farm since 1951 drop from 12 percent down to 2 percent. The year before last, it disappeared entirely because of wet corn.

I cannot help but feel that as a national policy it might be well if we would declare a 5-year recess on all new reclamation starts, and not prejudice that great work in any way. I am also one who hopes that 10 years from now we will not have a surplus, according to testimony before my Subcommittee on Appropriations for Agriculture, of which I am the ranking member. But it will require about 10 years to get on that basis.

Would you not say if about 5 years from now you could proceed with new starts, 5 years after that some of them would be in production?

Mr. DOMINY. Five years is a little short. Ordinarily, from the time we start a project in the new starts category, the first land would probably be brought under water in about 5 years.

Mr. ANDERSEN. So take 7 years.

Mr. DOMINY. But with any sizable project, for example, the Columbia Basin project, we started the irrigation features of that great project right after the war in 1946, and here we are 14 years later and

we are able to serve about 300,000 acres out of a million acres which we started out to build to. So it does take a long while.

Mr. ANDERSEN. As one of my first summer jobs as a high school boy in Montana, I worked for a week or two and considered it then pretty hard labor—I went out into the ranch country and got a job down in the flats where they had an irrigation project, and helped to repair dikes. I really put in a couple of weeks of good hard work. That was my first acquaintance, at the age of about 14, with irrigation. I was much impressed with what even then irrigation did to make a sort of oasis in the desert. It made good land of worthless land. But I am discussing this from the viewpoint of national economics.

Mr. DOMINY. I understand, sir.

Mr. ANDERSEN. Yesterday on the floor of the House we ran into a snag in trying to get $675 million restored as partial restoration of the Commodity Credit Corporation for part of the losses it took in fiscal year 1959.

You see what we are up against in part of our economy. I also know many of these people in the West. I can see that it is lifeblood to those areas to open them and put water on that land. But I think right now we are in a difficult 10-year period, and personally I think I would vote, if the subject were put up, for a 5-year moratorium on new starts, but at the same time saying that we would not let any rejection of new starts continue more than, at the most, 5 years.

In my own line of thinking, we shall be hampered by not enough food for the extra 40 million people about 10 years from now. This thing will swing. At the present time we have a great many farmers who cannot make a go of it because of the lack of a fair price for what they produce. I am just wondering if perhaps the cogs are not a little out of gear. I wonder, gentlemen, if we should seriously consider in these hearings any new starts in reclamation.

Mr. PILLION. If the supply were brought into balance with demand for agricultural products, would you not do away with the effect of having a surplus depressing the prices received by the farmers, and the farmers as a whole would be much better off economically and receive a fairer share of the consumer's dollar?

Mr. ANDERSEN. Mr. Pillion, you are absolutely right.

As one of the authors of the soil bank, I am delighted to see the administration propose a $60 million soil bank program, conservation reserve, taking land out of production, as one of the basic factors in trying to bring up this agricultural economy of ours. The administration is proposing that on the one hand, and I am back of them on that temporarily. Gentlemen, that just does not jibe with this idea of new starts in reclamation, especially where you are talking about $350 an acre land to bring water onto pasture areas or alfalfa or small grains.

Mr. DOMINY. Mr. Andersen, you are an eloquent spokesman for your point of view. I should like you to study with care——

Mr. ANDERSEN. Maybe I am too blunt at times, but I have very strong feelings where agriculture and farm people are involved.

Mr. DOMINY. Not at all, Mr. Andersen. I would like you to study with care the material which we put into the record yesterday in discussions in connection with my opening statement.

(Off the record.)

Mr. DOMINY. We put into the record yesterday some very carefully considered statements dealing with this particular point you mentioned based on conferences with the Department of Agriculture, the Department of Commerce, and with the Census Bureau, taking into account the forecasts of food needs and the ability to meet the needs of our exploding population.

Mr. ANDERSEN. Off the record.

(Discussion held off the record.)

Mr. FENTON. While we are attempting to assist, and have assisted, throughout the years certain sections of the country, and there is nothing wrong with trying to help certain areas, the time will come when somebody will say we ought to divide up this pie a little more equitably.

I could go into the coal mining industry situation a great deal, because right now we have a situation where one part of my district has abandoned the last coal mines in the Panther Creek-Tamaqua area and just last week put some 1,200 men out of work, in addition to those already idled.

One entire valley has been abandoned as far as coal mines are concerned. That is the problem we have before us right now.

While we do not object to other areas of the country getting assistance, yet we see this Government of ours interfering, as it were, with certain industries by imports and by assisting other industries like the great oil and gas industries, constructing pipelines for them during the war—which was necessary, but after the war the Government saw fit to sell them to those industries right up to the east coast. It has affected us very greatly.

Mr. CANNON. Off the record.

(Discussion held off the record.)

Mr. CANNON. Dr. Fenton.

NEW STARTS

Mr. FENTON. These six new starts, Mr. Dominy, will cost how much ultimately?

Mr. DOMINY. The six will cost approximately $217,990,000 to complete.

Mr. FENTON. How long have those projects which you are going to rehabilitate been in existence?

LA FERIA DIVISION

Mr. DOMINY. Your question is directed to the LaFeria division under the title "Lower Rio Grande Rehabilitation"?

Mr. FENTON. Yes.

Mr. DOMINY. This is not being built under the Rehabilitation and Betterment Act which is available to any federally constructed project. This LaFeria division is in lower Rio Grande, Tex. It was constructed originally by private enterprise, floating bonds and financing their own construction. It has been in operation for years.

It was a little too big to fit into the Small Projects Act where the Congress set a limit of $5 million, so there was a special act put through which authorized us to rehabilitate this existing system with interest free reclamation money.

The total cost of that is $5,772,000. In other words, it is being carried out exactly similar to what we would do on a project which was built originally as a Federal reclamation project but in this instance, since it was not a Federal reclamation project, they had to have special congressional authority to undertake it.

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS

Mr. FENTON. On page 238 and page 239, part 2–a, rehabilitation and betterment existing projects are listed.

Mr. DOMINY. Yes, sir.

Mr. FENTON. Total estimated cost is $44 million.

Mr. DOMINY. That is right, sir.

Mr. FENTON. How long have those projects been in being?

Mr. DOMINY. The Arnold, Oreg., project is one that got in by an appropriation act in 1948. It was originally built by private enterprise. It is an old project. I think it was built in the twenties or early thirties.

The Bitter Root, Mont., project is a Federal reclamation project started out as a private enterprise back about 1920 and they got into trouble and it came under reclamation by special authorization dating back to about 1930.

The Boise, Idaho, project is one of the very first projects constructed under the Reclamation Projects Act of 1902. It was undertaken in 1905 and 1906. That project has been one of the jewels in the crown of reclamation, but a number of its works now are very old and they were built originally with wood where now we would use concrete, so the rehabilitation is bringing it up to modern standards, relining canals and replacing some of the wornout structures.

Mr. FENTON. How long do you expect these things to go before they are taken over entirely by the local people?

Mr. DOMINY. Actually the Boise project is operated now by local people. Their original indebtedness is almost entirely retired, but rehabilitation and betterment is adding to their repayment and will extend their repayment period.

Mr. FENTON. How long is the period supposed to be?

Mr. DOMINY. I do not have that information readily available. Let me check it. Mr. Stamm tells me rehabilitation and betterment was added into their indebtedness under existing contracts and they are being paid out concurrently and it will take about another 20 years to complete the repayment of both the original indebtedness and the rehabilitation and betterment.

Mr. FENTON. Any interest on that?

Mr. DOMINY. No interest on the irrigation obligation; no, sir.

The North Platte project, Nebraska and Wyoming, was undertaken early in the 20th century. This is one of our early projects. Again this $5 million programed is to line canals and replace wornout structures that have served their useful life and will bring the project back to current day operating standards.

Mr. FENTON. These are projects obtained by the local people?

Mr. DOMINY. The North Platte project has studies to indicate that the value to Nebraska and Wyoming as compared to that land under dryland conditions is tremendous. The tax returns, for example, on the 200,000 acres in the North Platte area as compared to similar dry-

land acres is tremendous. Irrigated areas support 27 times more population, 33 times more Federal tax revenue.

Mr. FENTON. Then why could they not assume this obligation themselves in the way of rehabilitation?

Mr. DOMINY. Those figures reflect total increased benefit to the economy of the Nation. All that does not flow to the farmer himself.

Mr. FENTON. They have a pretty good deal when we supply these things for them, get them on their feet, and you say now that they are prosperous and add so much to the tax structure. Yet they come in now and want more money.

Mr. DOMINY. Well, you have this kind of a situation: The reclamation law is the only place left where we are trying to protect the family farm. We irrigate only small patches, 160 acres per individual as compared to the big factory farms that are in existence.

This economic value does not stop at the farm family, but all these crops have to be processed, and all their tractors are manufactured in the East, and so on.

We have very definite evidence that these projects are good investments to the Nation's economy, but that does not mean that the individual farmer is reaping undue wealth as a result of this interest-free Federal investment.

Mr. FENTON. Have we not reached the point, Mr. Dominy, which was thought of at the beginning, to help them get on their feet? They are on their feet, just as the Tennessee Valley is. Yet we keep on giving out year after year.

I have asked the question often: When will this thing stop? You have told me it will not stop. That is what you told me.

Mr. DOMINY. Well, the Rehabilitation and Betterment Act——

Mr. CANNON. Of course, the doctor understands that every year the Tennessee Valley pays more in taxes to the States and municipalities than they would have received from taxes.

Mr. FENTON. I understand that, Mr. Chairman, but the purpose of the 1933 act was to try to get them on their feet. I think we have done that, do you not?

Mr. CANNON. In that connection, if you will permit, may I ask a question?

Mr. FENTON. Surely.

Mr. CANNON. In part 2–a, Bureau of Reclamation, construction and rehabilitation, the page 238 that the doctor referred to, there is a long list of programs there beginning with Arnold, Oreg., and ending with Yakima, Wash.

Mr. DOMINY. Yes, sir.

Mr. CANNON. Every dollar will be paid back?

Mr. DOMINY. Yes, sir.

Mr. CANNON. But without interest.

Mr. DOMINY. Yes, sir.

Mr. CANNON. Will not the amount which the Government will receive from taxes as a result of the improvement of this land more than compensate the Government for the interest?

Mr. DOMINY. We think so, that the additional economy which is generated by these irrigated projects reaches into all corners of the Nation. I think the value of this has been demonstrated again and again.

Mr. CANNON. And annual taxes on these improvements now and in the future will mean more than the interest on the money?

Mr. DOMINY. Reclamation farmers and nonfarm businessmen and workers in the vicinity of Federal irrigation projects are estimated to have paid in a total of $359 million in Federal income and excise taxes in 1959 as a result of the commerce that is related to irrigation farming.

Mr. FENTON. Of course, all of this argument this morning would certainly substantiate the suggestion here by our colleague from Minnesota that if we are going to do this why not rehabilitate those projects that have to be rehabilitated and let the new starts alone. Put a moratorium on new starts for 5 years.

Mr. CANNON. I am in complete accord with the gentleman on that.

Mr. FENTON. Thank you, Mr. Chairman.

RECLAMATION ACCOMPLISHMENTS

Mr. DOMINY. Mr. Chairman, recognizing the import of this debate here concerning the general aspects of reclamation in relation to the present state of the Nation's economy, I would like to have your permission to supplement the record with a few of these documents we have been preparing which show the accomplishments of reclamation on the projects that are in existence and things of that sort which relate directly to this debate this morning so it will be available to the committee.

Mr. PILLION. I am not so sure whether we ought to receive those without some opportunity to look at them, some opportunity to examine the witnesses, some opportunity to discuss them.

I am not at all convinced that the Commissioner's statement as to the amount of taxes paid into the Treasury out of reclamation and business assisted through reclamation projects is at all valid.

Mr. CANNON. We will insert the statement here and then when we resume this afternoon we will have the Department make an oral presentation and an opportunity will be afforded to you to question each item as you wish.

Mr. PILLION. Thank you.

Mr. CANNON. The gentleman is recognized for that purpose.

(The information referred to follows:)

RECLAMATION PROJECTS IN THE GREAT PLAINS CAN MITIGATE THE CROP SURPLUS PROBLEM

The development of irrigation projects in the subhumid corn and wheat areas of west-central Nebraska and Kansas enables farmers to convert to the growing of nonsurplus crops. Irrigation units of the Missouri River Basin project and other Great Plains projects are in various stages of development and they indicate a pattern which helps to chart the transition from dryland farming to irrigation.

In these areas where farmers formerly grew either corn or wheat almost exclusively, they tend to follow their old customs the first year or so, utilizing their existing complements of machinery and practicing the methods they know best. In the second and third years of irrigation a shift is made to diversify with less corn grown each succeeding year.

Stabilized growing conditions rapidly establish a feeling of confidence as well as providing the cash and credit standing which enables the farmers to level their land and broaden their machinery line so as to intensify and diversify their cropping. On the Kirwin unit of the Missouri River Basin project, the third year of irrigation saw corn reduced to 74 percent of the planted acreage. After 10

years of irrigation on the Mirage Flats project, the corn acreage comprised only one-fourth of the irrigated area.

Wheat has practically disappeared from these projects, although wheat and corn were the predominate crops prior to irrigation development. In place of wheat and corn the irrigation farmers now produce dependable yields of crops that can take advantage of current market demands—alfalfa hay, dry edible beans, ensilage, sugar beets, irrigated pasture, et cetera. These trends helps to explain why Nebraska farmers, through their own efforts, converted 1½ million acres to irrigation between 1949 and 1958. About 43,000 acres were brought in by Government projects in Nebraska during the same period.

FEDERAL TAX PAYMENTS FROM RECLAMATION PROJECT AREAS

Reclamation farmers and the nonfarm businessmen and workers in the vicinity of Federal irrigation projects are estimated to have paid in a total of $359 million in Federal income and excise taxes in 1959 as a result of the commerce that is related to irrigation farming. Cumulative tax collections from this source amount to some $3.9 billion since 1940, when the Federal income tax became a significant factor in Government revenues.

This is a measure of the beneficial effect, in terms of indirect financial returns to the U.S. Treasury, of establishing a stable economic base in an underdeveloped region of the country. The full economic impact of the water resource developments which have been built to date will not be felt for some time due to the fact that nearly three-fourths of all appropriations to reclamation have been made within the last 15 years, and, therefore, have not produced their full effect. Maximization of returns from crop production, project repayment and increased business frequently requires 15 to 20 years. On the oldest reclamation projects, commerce continues to expand after more than 50 years. This seems to be due to the resiliency of the irrigation farm economy—a capacity to respond to changes in the demand for farm commodities while nonirrigated areas must adhere to fixed-output patterns.

Case studies of the degree to which an existing, low-ebb economy can be stimulated by the introduction of irrigation fully support the estimate of tax revenue. One such study revealed that the irrigation of 1,000 acres of land gave rise to local payrolls amounting to $107,000 and provided support for between 75 and 85 nonfarm persons. On another project, the irrigated land supported a community with 27 times as many people as an equivalent dryland area, and their earnings were so enhanced that Federal tax revenues from the area were increased 33 times.

These effects on the farming and commerce are permanently beneficial. Project beneficiaries repay project construction costs as well as the annual costs of project operation. These Federal tax revenues are over and above the amounts recovered for liquidation of project costs. Each year this source returns to the Treasury an amount greater than the annual appropriation for reclamation activities.

EFFECT OF RECLAMATION ON U.S. TRADE AND BUSINESS ACTIVITY SYNOPSIS

The retail market in the 17 reclamation States is expected to handle about $61 billion worth of goods in 1960. This is three times the value of U.S. exports; and per capita expenditures at the retail level amount to $1,403 per person in these Western States, compared with $1,254 in the 31 Eastern States.

Nevada leads the Western States with per capita retail sales of $2,017 per person, followed by California with $1,540. This high per capita expenditure contrasts sharply with that of Mississippi which has the U.S. low of $773. These estimates, published by the trade publication, Editor and Publisher Guide, illustrate a continuing upward trend that has characterized the U.S. economy in the past 20 years. In 1939 the per capita retail sales volume averaged $319 per capita. The figure had risen to $855 by 1949. The current level of retail trade in the United States, being approximately four times that of 20 years ago, is somewhat of an index of the expansive nature of the wants and needs of our population.

The goods sold at retail in the 17 Western States and the produce from western farms stimulate a healthy, two-way pattern of commerce. These reclamation States were a market for more than a million carloads of goods shipped by rail from the 31 Eastern States in 1950. Based on estimates of the comparative quantities shipped via truck and rail carriers, an even greater quantity was

shipped by truck to the western market. The commerce generated by irrigation farming provides outlets for textiles of the Southeast and New England, automotive equipment and farm machinery from the industrial Lake States, and the host of assorted goods and services supplied the entire breadth of the Nation. On representative reclamation projects a dollar's worth of crops gives rise to $3 of local retail business from the farmers and the associated workers in the towns.

A new term, "Agribusiness" has been coined by Harvard University economists to use in describing the interrelationship of agriculture and business. It includes all operations pertaining to the off-farm manufacture, merchandising, and servicing of agricultural production supplies; operations on the farm; and off-farm activities relating to the conversion and merchandising of consumer items made from farm commodities. This interrelated sector of the economy accounted for about 40 percent of all consumer expenditures in 1954; possessed in excess of 50 percent of the combined assets of manufacturing, retail, and wholesale corporations and agriculture; and required the services of 37 percent of the national working force. Obviously the lives and livelihood of many persons are directly tied to conditions prevailing within agriculture, and everyone is affected to some degree. The impact of the near-billion dollar reclamation crop spreads far and wide throughout the commerce of the country, creating demands for production of goods from some and satisfying the needs of others. The inherent vigor of irrigation farming plays an important role in advancing the well-being of our society.

REHABILITATION AND BETTERMENT PROGRAM

Mr. FENTON. Continuing with this rehabilitation, I wish Mr. Dominy would insert in the record these various items and programs for rehabilitation in connection with page 238 and give us the length of time they have been in operation, the value these projects have been to the various communities, what they have produced, and the extension of time given to them to pay out.

Mr. DOMINY. Would it satisfy your question, Dr. Fenton, if we gave you a table showing the name of the project, the date of the original authorization, and the date that the rehabilitation work was undertaken, and the amount of the rehabilitation work, and the length of time over which the rehabilitation work is to be repaid, and then give you the cumulative gross crop returns for that project?

Mr. FENTON. Yes, and the original length of time it was supposed to be paid out.

Mr. DOMINY. We will work up a table for the record on that basis.

(The information requested follows:)

Rehabilitation and betterment program

Project	Construction			Rehabilitation and betterment			Crop data	
	Date of initial Bureau construction	Cost to June 30, 1959 (dollars)	Payout period (years)	Date of initial R. & B. contract	Estimated cost (dollars)	Payout period (years)	Cumulative crop value (dollars)	Principal crops
Arnold, Oreg.	[1] (1905) [1] 1948	202, 429	40	1959	43, 418	[2] 18	1, 411, 602	Forage.
Bitter Root, Mont.	[1] (1908)	1, 207, 706	58	1948	324, 688	[3] 40	12, 893, 293	Grain and forage.
Boise, Idaho-Oreg.	1932	65, 960, 931	40	1956	3, 322, 996	[4] 20	671, 893, 599	Sugar beets, grain, and forage.
North Platte, Nebr.-Wyo.	1906	23, 796, 976	[5] 40–75	1949	5, 728, 492	[6] 5–71	604, 233, 115	Do.
Ogden River, Utah.	1905	5, 150, 913	67	1958	443, 775	[3] 35	29, 437, 832	Grain and forage.
Okanogan, Wash.	1934	1, 519, 034	73	1951	80, 205	7 12	43, 096, 189	Apples and forage.
Orland, Calif.	1906	2, 803, 325	[8] 40	[9] 1950	1, 038, 695	[10] 22–25	40, 516, 000	Nuts, specialty crops, and forage.
Owyhee, Idaho-Oreg.	1908	19, 331, 200	88	1951	402, 338	11 88	232, 015, 677	Sugar beets, grain, and forage.
Riverton, Wyo.	1928	27, 414, 191	40	1959	2, 300, 000	[12] 23	906, 020, 568	Nuts, cotton, grain, and forage.
Rogue River Basin, Oreg.	1906	23, 234, 382	40	1959	4, 448, 355	[11] 108–128	39, 667, 977	Forage and grain.
Salt River, Ariz.	1920		108–128	1952			15, 520, 039	Pears, grain, and forage.
Sun River (Fort Shaw), Mont.	[1] (1919)	18, 045, 453	60	1955	1, 920, 490	[3] 40–60	1, 561, 787, 905	Sorghums, cotton, grain, and forage.
Uncompahgre, Colo.	1956	20, 077, 508	40	1950	15, 978, 000	[13] 30	7, 937, 719	Grain and forage.
Yakima (Sunnyside), Wash.	1903	10, 224, 962	[14] 50	1949	99, 935	42	133, 178, 292	Beans, forage, and grains.
Yakima (Tieton), Wash.	1906	8, 965, 959	125	1960	725, 000	[3] 38	409, 418, 886	Apples, grain, and forage.
	1906	[15] 61, 361, 658	40	1958	338, 000	[16] 19–33	316, 750, 352	
			37	1960	507, 500	13		

[1] Date of original private construction in parenthesis (preceded Federal construction by considerable period of years).
[2] Repayment within construction repayment period.
[3] Extends 8 years beyond construction repayment period.
[4] Confined to Arrowrock division. 37 contracts for original construction and 7 for R. & B.
[5] 23 contracts for original construction repayment.
[6] 28 contracts with varying repayment periods. Some extend original payout period and some do not. Covers various R. & B. programs over past 11 years.
[7] Obligation repaid after repayment of construction obligation.
[8] Phased construction program scheduled for repayment by irrigation beneficiaries in contracts of about 40 years duration.
[9] By resolution dated Feb. 24, 1950, the board of directors of the Orland Water Users' Association requested an R. & B. program to be paid for by increased annual O. & M. charges. Additional programs were initiated by 1954 and 1956 contracts.
[10] Repayment periods vary from 22 to 25 years. Last phase of latest program scheduled to be repaid in 1991.
[11] R. & B. costs merged with and concurrently paid out with construction obligation.
[12] Extends 16 years beyond construction repayment period.
[13] 30-year repayment period for each R. & B. obligation under a series of contracts. Repayment of latest program scheduled to extend 8 years beyond latest 40-year construction repayment period.
[14] Early repayments under contracts with individual water-right applicants replaced in part by district payments since 1926.
[15] Cost of entire Yakima project.
[16] 7 irrigation districts with 15-year repayment periods commencing on various dates. Does not include Roza Irrigation District's share of costs.

ALLOTMENT OF COSTS TO RECREATION AND FISH AND WILDLIFE

Mr. TABER. Mr. Chairman, I would like to have the Bureau place in the record a table at this point which will show the allotment of these costs to recreation and fish and wildlife separately for each project, and then with a combined total in each of the three columns. Is that clear?

Mr. DOMINY. I believe it is, sir. The data sheet which is contained in the material before you gives the allocation on a separate table for each project. You would like that lumped into one table?

Mr. TABER. I would like it gathered together.

Mr. DOMINY. Where it deals with fish and wildlife and recreation?

Mr. TABER. Yes.

Mr. DOMINY. Very well, sir. We will be happy to do that.

Mr. RABAUT. The table you are requesting will exhibit and make known the cost or the percentage of the cost of the project?

Mr. TABER. Table of allocation.

Mr. RABAUT. A question came up about that yesterday. In one place it sets forth what percentage of the cost of the project is devoted to the purpose to which you addressed yourself, and the other one had to do with a difference of figures.

Mr. BENNETT. One was the specific cost of the works for providing recreation, for example. The other was the amount allocated to the function.

Mr. RABAUT. Yes. Do you want both of those?

Mr. TABER. Perhaps we ought to have the cost of the allocation and we can figure the rest of it. That will give us the complete picture for the whole thing.

Mr. RABAUT. I thought you probably would want that.

Mr. CANNON. The witness will be directed to include that table at this point.

(The information requested follows:)

Costs allocated to fish and wildlife, and recreation

Projects	Fish and wildlife allocation			Specific recreation costs	Total to be allocated
	Specific costs	Joint costs	Total allocation		
Central Valley	$14,179,000	$2,859,000	$17,038,000	$250,000	$797,855,000
Collbran		100,000	100,000		16,422,000
Washoe-Prosser Creek only		1,407,000	1,407,000	58,000	5,958,000
Washita Basin	30,000	809,000	839,000	549,000	39,491,500
Crooked River	28,000	462,000	490,000	16,000	8,467,000
Rogue River Basin, Talent	104,000		104,000	140,000	24,273,200
Vale, Bully Creek extension		69,000	69,000	60,000	3,326,000
San Angelo		4,029,000	4,029,000	68,000	32,743,000
Weber Basin	239,000	4,309,000	4,548,000	[1] 2,545,000	97,500,000
Chief Joseph Dam, Greater Wenatchee	90,000		90,000		8,284,000
Colorado River storage project and participating projects:					
Curecanti unit				3,268,450	77,437,000
Flaming Gorge unit				3,109,000	73,090,000
Glen Canyon unit				9,241,000	364,397,887
Navajo unit				834,000	43,206,000
Central Utah, Vernal unit	27,000	121,000	148,000	93,000	6,978,000
Florida	30,000	1,611,000	1,641,000	52,000	10,922,000
Hammond		98,000	98,000		3,280,000
Paonia				7,500	7,770,992
Seedskadee	1,220,000	606,000	1,826,000	185,300	38,519,300
Smith Fork		197,000	197,000	29,000	4,420,000
Missouri Basin project:					
Ainsworth unit	10,000	479,000	489,000	14,800	26,423,500
Almena unit	20,000	689,000	709,000	19,000	15,459,000
Bostwick division	24,000	638,000	662,000	78,800	97,136,728
Cedar Bluff unit	3,000	1,178,900	1,181,900	45,000	18,340,607
East Bench unit	140,000	996,000	1,136,000	15,000	21,719,000
Farwell unit	34,000	834,000	868,000	56,000	33,608,000
Frenchman-Cambridge division	46,000	505,700	551,700	160,500	80,856,908
Glendo unit		1,251,950	1,251,950	13,600	39,431,077
Helena Valley unit		699,000	699,000	6,000	15,466,976
Owl Creek		92,930	92,930		7,111,500
Webster	13,000	466,000	479,000	38,000	18,695,000
Yellowtail	65,000	543,000	608,000	500,000	72,852,000
Total	16,302,000	25,050,480	41,352,480	21,451,950	2,111,441,175

[1] In addition to specific costs there is a joint cost allocation to recreation of $2,193,000 on the Weber Basin project.

NONREIMBURSABLE COSTS OF PROJECTS

Mr. FENTON. How can you say, Mr. Dominy, that all the cost of the reclamation projects will be repaid when large segments of many projects are charged off to nonreimbursable items, such as flood control, fish and wildlife, recreation, and so forth, and no interest is paid on the irrigation allocation?

Mr. DOMINY. My statement, Dr. Fenton, is that that portion of the projects allocated to irrigation is repaid in full but without interest.

Surely a project that has a flood control allocation would not be expected to be repaid in the 17 Western States because Reclamation built it any more than it would be if it were built elsewhere under the national policy of flood control being a nonreimbursable item.

Certainly fish and wildlife and recreation, to the extent that Congress is adopting that as a general policy, should no more be repaid when built by Reclamation than it would be when built by the Corps or anyone else. So there are only those elements of our projects being treated as nonreimbursable as a matter of policy by Congress that are written off, but the irrigation costs always are paid, power costs repaid with interest, M. & I. allocations repaid with interest, and irrigation paid without interest under the philosophy of the original Reclamation Act.

Mr. FENTON. How much interest do they pay?

Mr. DOMINY. The power is paid at 3-percent interest, and even interest during construction is being charged now in our current projects. That is a more recent addition to congressional policy and administrative practice.

Municipal and industrial water also is paid with interest at 3 percent.

Mr. FENTON. The Government has to pay a good deal more than that to get money.

Mr. DOMINY. At the present time that is true.

Mr. FENTON. A pretty good deal.

Mr. DOMINY. At the time the 3-percent interest was prescribed that was about the rate, or a little higher than Federal money was being borrowed.

Mr. FENTON. Will you supply for the record the total writeoff of all Bureau projects to nonreimbursable items and interest cost at 3 percent compounded for each project over the payment period for such reimbursable features?

Mr. DOMINY. Very well, sir, we will be glad to supply it.

Estimated total cost, nonreimbursable costs, and interest on reimbursable irrigation allocation, by project, 1959

Project and State	Total	Nonreimbursable costs	Interest at 3 percent during 40-year amortization of reimbursable irrigation allocation

Estimated total cost, nonreimbursable costs, and interest on reimbursable irrigation allocation, by project, 1959

Project and State	Total estimated cost	Nonreimbursable costs				Interest at 3 percent during 40-year amortization of reimbursable irrigation allocation			
		Irrigation	Navigation and flood control	Fish and wildlife	Recreation and other [1]	Allocation	Interest	Pumping power included	
								Allocation	Interest
Total, Bureau of Reclamation [2]	$5,478,949,617	$74,729,242	$343,179,856	$40,428,313	$31,997,229	$2,738,426,965	$2,000,409,949	$42,345,597	$30,933,289
Arnold, Oreg.	242,926					242,926	177,456		
Avondale, Idaho	244,424					244,424	178,551		
Baker, Oreg.	225,015					225,015	164,373		
Balmorhea, Tex.	406,533	181,698				224,835	164,241		
Belle Fourche, S. Dak.	5,038,107	1,479,300				3,558,807	2,599,694		
Bitter Root, Mont.	1,257,124	2,310				1,254,814	916,637		
Boise, Idaho-Oreg.	66,948,649	82,394	14,845,093			47,051,618	34,371,019	2,466,842	1,802,018
Boulder Canyon, Ariz.-Calif.-Nev.:									
All-American canal system	68,361,516	3,260,680	4,586,442			60,048,751	43,865,372		
Hoover Dam and powerplant	174,932,700				[a] 3,408,482				
Buffalo Rapids, Mont.	5,205,405	3,852,888				1,352,517	988,008		
Buford-Trenton (old), N. Dak.	223,423	221,424				1,999	1,460		
Buford-Trenton, N. Dak.	1,238,000	690,293	437,436			110,271	80,553		
Burnt River, Oreg.	601,026					601,026	439,047		
Cachuma, Calif.	43,582,317					43,582,317	31,836,708		
Canadian River, Tex.	100,483,000		4,448,000						
Carlsbad, N. Mex.	5,263,967	556,713	1,007,612		[b] 24,375	3,675,267	2,684,768		
Central Valley, Calif.	875,604,000		48,535,000	14,179,000	250,000	471,832,000	344,671,389	[3]	
Chief Joseph Dam, Wash.:									
Foster Creek	3,470,108			17,500		3,452,608	2,522,116		
Greater Wenatchee	7,896,000			90,000		7,716,000	5,636,507		
Collbran, Colo.	16,422,000			62,000	[c] 42,000	6,050,000	4,419,501		
Colorado-Big Thompson, Colo.	161,820,607					100,665,000	73,535,380	[3]	
Colorado River, Tex.	23,439,644		12,972,602		[d] 4,956,542				
Colorado River front work and levee system	11,230,424		10,501,852						
Colorado River storage and participating [2]	708,296,179		279,000	2,269,000	13,498,800	162,434,749	118,657,935	997,000	728,305
Columbia Basin, Wash.	913,765,000		3,100,000		[e] 175,600	716,891,382	523,686,287	7,185,850	5,249,235
Crescent Lake Dam, Oreg.	321,436					321,436	234,808		
Crooked River, Oreg. (including Ochoco)	8,914,366		1,356,000	490,000	16,000	7,052,366	5,151,725	[4] 447,366	326,799
Dalton Gardens, Idaho	258,660					258,660	188,950		
Deschutes, Oreg.	12,966,659	1,617,758				11,348,901	8,290,327		
Eden, Wyo.	8,150,910					8,132,716	5,940,917		
Eklutna, Alaska	32,833,485								
Falcon, Tex.	[5]								
Fort Peck, Mont.-N. Dak. (see Missouri River Basin)									
Fort Sumner, N. Mex.	2,372,069					2,372,069	1,732,787		
Frenchtown, Mont.	279,321					279,321	204,043		
Fruitgrowers Dam, Colo.	200,309					200,309	146,325		
Garden City, Kans.	334,475	334,475							

See footnotes at end of table, p. 61.

Estimated total cost, nonreimbursable costs, and interest on reimbursable irrigation allocation, by project, 1959—Continued

Project and State	Total estimated cost	Nonreimbursable costs				Interest at 3 percent during 40-year amortization of reimbursable irrigation allocation			
		Irrigation	Navigation and flood control	Fish and wildlife	Recreation and other [1]	Allocation	Interest	Pumping power included	
								Allocation	Interest
Gila, Ariz	$62,976,597	$6,392,783				$56,583,814	$41,334,250		
Grand Valley, Colo	7,872,422	2,131,526				5,361,227	3,916,355		
Grants Pass, Oreg	808,795					808,795	590,822		
Hondo, N. Mex	339,377	339,377							
Humboldt, Nev	1,337,320					1,337,320	976,907		
Hungry Horse, Mont	101,749,493		$20,420,590						
Huntley, Mont	1,829,328	297,898				1,529,190	1,117,067		
Hyrum, Utah	953,854					953,854	696,787		
Intake, Mont	94,213	47,313				46,900	34,260		
Kendrick, Wyo	31,415,384					14,723,092	10,755,160		
King Hill, Idaho	1,877,732	1,877,732							
Klamath, Calif.-Oreg	19,637,608	94,743				19,542,865	14,275,985		
Lewiston Orchards, Idaho	2,484,397					1,438,681	1,050,951		
Little Wood River, Idaho	2,212,000		263,400	$244,300	$30,700	1,673,600	1,222,558		
Lower Rio Grande, Mercedes, Tex	10,800,000					10,800,000	7,889,357		
Lower Yellowstone, Mont.-N. Dak	3,585,927	391,789				3,194,138	2,333,305		
Mancos, Colo	3,915,061	3,029,177				885,884	647,135		
McMillan Delta, N. Mex	2,830,000				[3] 230,000	2,600,000	1,899,290		
Michaud Flats, Idaho	4,830,356					4,830,356	3,528,556		
Middle Rio Grande, N. Mex	31,525,580	2,110,000	13,650,000			15,765,580	11,516,693		
Milk River, Mont	9,816,909	2,523,152				7,197,757	5,257,933		
Minidoka, Idaho-Wyo	37,666,530	2,288			33,477	34,248,458	25,018,362	$559,449	$408,675
Mirage Flats, Nebr	3,061,614	2,219,696				841,918	615,018		
Missoula Valley, Mont	278,321	233,321				45,000	32,872		
Missouri River Basin, various:									
Bureau of Reclamation [2]	958,130,348		132,994,430	12,837,480	142,800 [4] 1,000,000	451,963,919	330,157,835	7,674,000	5,605,826
Fort Peck project—Bureau of Reclamation	24,687,000								
Moon Lake, Utah	1,799,859	200,500				1,599,359	1,168,325		
Newlands, Nev.-Calif	7,835,042	4,577,778				3,257,264	2,379,418		
Newton, Utah	712,592	362,437				350,155	255,787		
North Platte, Nebr.-Wyo	25,678,326	664,925				22,062,624	16,116,659		
Ochoco, Oreg. (see Crooked River)									
Ogden River, Utah	5,450,984	278,000				5,172,984	3,778,844		
Okanogan, Wash	1,559,246	978,504				580,742	424,230		
Orland, Calif	3,333,870					3,333,870	2,435,379		
Owyhee, Oreg.-Idaho	19,413,743					19,413,743	14,181,662		
Palisades, Idaho-Wyo	62,850,222		22,456,000	489,000	148,000	27,409,100	20,020,046	7,867,100	5,746,885
Palo Verde, Ariz.-Calif	4,912,481	2,351,690	885,791			1,675,000	1,223,581		
Parker-Davis, Ariz.-Calif.-Nev	142,409,633				[5] 872,395	11,638,469	8,501,855	[6] 11,638,469	8,501,855
Pine River, Colo	3,466,830		1,945,507			1,521,323	1,111,320		
Preston Bench, Idaho	450,100					450,100	328,796		
Provo River, Utah	36,304,188	130,131							

Ochoco, Oreg. (see Crooked River)	25,678,326	664,925				350,155	255,787			
Ogden River, Utah						22,062,624	16,116,659			
Okanogan, Wash	5,450,984	278,000								
Orland, Calif	1,559,246	978,504				5,172,984	3,778,844			
Owyhee, Oreg.-Idaho	3,333,870					580,742	424,230			
Palisades, Idaho-Wyo	19,413,743					3,333,870	2,435,379			
Palo Verde, Ariz.-Calif	62,850,222		22,456,000	489,000	148,000	19,413,743	14,181,662			
Parker-Davis, Ariz.-Calif.-Nev	4,912,481	2,351,699	885,791			27,406,100	20,020,046	7,867,100	5,746,885	
Pine River, Colo	142,409,633				[c] 872,395	1,675,000	1,223,581			
Preston Bench, Idaho	3,466,830		1,945,507			11,638,469	8,501,855	[6] 11,638,469	8,501,855	
Provo River, Utah	450,100					1,521,323	1,111,320			
Rapid Valley, S. Dak	36,304,188	130,131				450,100	328,796			
Rathdrum Prairie, Idaho	920,224	397,284				9,283,402	6,781,488			
Rio Grande, N. Mex.-Tex	1,002,104	173,951				22,940	16,758			
Riverton, Wyo	29,080,238	428,514	1,519,650		[h] 1,284,615	828,153	604,962			
Rogue River (river and basin), Oreg	31,067,182	931,283		400,465	[i] 949,173	16,529,471	12,074,712			
Rogue River Basin, Talent division, Oregon	1,991,000					28,305,247	20,676,870			
Salt River, Ariz	24,273,000		579,000	104,000	140,000	1,991,000	1,454,418			
San Angelo, Tex	20,077,508	382,097				14,114,000	10,310,221			
San Luis Valley, Colo	32,743,000		11,153,000	4,029,000	68,000	19,695,411	14,387,419			
Sanpete, Utah	3,871,116		1,548,352			10,504,000	7,673,130			
Santa Maria, Calif	433,940	59,400				2,322,764	1,696,770			
Scofield, Utah	11,695,968		2,075,099			374,540	273,600			
Shoshone, Wyo.-Mont	943,837	298,081	393,000			9,620,869	7,028,006			
Solano, Calif	23,737,862	1,981,600				215,741	157,598			
Strawberry Valley, Utah	38,457,728		1,132,000		125,000	15,702,369	11,470,518			
Sun River, Mont	3,485,419					33,986,566	24,827,051			
Truckee storage, California-Nevada	10,322,114	489,662				3,485,419	2,546,085			
Tucumcari, N. Mex	1,092,423	81,207				9,832,452	7,182,567			
Umatilla, Oreg	15,474,082	10,243,944				1,011,126	738,623			
Uncompahgre, Colo	5,206,124	2,308,811				5,230,138	3,820,595			
Vale, Oreg	9,715,959	2,878,139				2,987,313	2,182,220			
Ventura River, Calif	4,866,824					6,837,820	4,995,000			
Vermejo, N. Mex	29,100,000					4,866,824	3,555,195			
W. C. Austin, Okla	2,747,096	464,777	55,096	198,000	100,000	16,237,576	11,861,484			
Wapinitia-Juniper division, Oregon	12,246,725	8,276,278	1,130,000			2,029,319	1,482,409			
Washita Basin, Okla	581,000				34,870	1,760,447	1,285,999			
Washoe, Nev.-Calif	39,491,500		15,417,000	839,000	{291,400 / 549,000}	546,130	398,946			
Weber Basin, Utah	52,150,000		4,493,000	1,407,000	58,000	10,169,700	7,428,925			
Weber River, Utah	90,942,000		9,000,000	1,604,000	3,568,000	(7)				
Williston, N. Dak	2,723,486					46,963,000	34,306,284			
Yakima, Wash	409,095	409,095				2,723,486	1,989,496			
Yuma, Ariz.-Calif	63,197,011	4,215		1,168,568						
Yuma, auxiliary	7,441,884	383,738				57,655,861	42,117,376	3,509,521	2,563,691	
	1,142,102	1,022,383				6,457,977	4,717,523			
						119,719	87,454			

[1] Other nonreimbursable costs are coded as follows:
- [a] Boulder City costs not directly associated with construction or operation of project.
- [b] Health and safety.
- [c] Highway and road construction.
- [d] Power.
- [e] Spillway lighting.
- [f] Salinity alleviation.
- [g] Water supply for military bases.
- [h] Servicing Mexican Treaty, $1,000,000, power litigation costs, and AEC substation.
- [i] Compensate Indian tribes.

[2] Includes Missouri River Basin and Colorado River storage units and participating projects for which construction funds have been appropriated through fiscal year 1960.
[3] Costs allocated directly to commercial power.
[4] Part of Cove powerplant assigned to interest free pumping power.
[5] Constructed by International Boundary and Water Commission. Power marketed by Bureau of Reclamation.
[6] Pumping power for Gila project.
[7] Reimbursable cost allocation in process.

Mr. CANNON. It is difficult to estimate what that would cost, Doctor. What would you say would be the cost of compiling that data?

Mr. DOMINY. We have the records as to the allocations on all of our projects, and, as I understand the question, Congressman Fenton merely wanted a tabulation of the construction costs and the amount that had been allocated to nonreimbursable functions, and then a tabulation of the 3 percent interest compounded on that construction cost over the repayment period for the reimbursable features. Is that what you are asking for, Doctor?

Mr. FENTON. That is right.

Mr. CANNON. You will be in a position to give that?

Mr. DOMINY. The latter would take some calculating and take some time but it can all be supplied without an exceptional amount of work.

INTEREST RATES

Mr. RABAUT. In view of the fact that we have under consideration here in Congress the question of a higher interest rate on money that the Government will borrow, how do you feel this should affect the interest rate that you people are charging at this time?

Mr. DOMINY. Of course, some of the more recent authorizations have required us to charge interest at the cost of interest to the Treasury at the time the feature goes into construction. Is that right, Mr. Bennett?

Mr. BENNETT. The most recent expression we have had out of the Congress on interest rates is that contained in the Water Supply Act of 1958.

The language written into that act at the present time produces an interest rate of about 2.7 percent.

On the other hand, we have authorization of projects, such as the upper Colorado, which requires a computation of interest rate at the present time at about 4⅛ percent, so frankly we are not sure just what the policy is here.

Mr. RABAUT. Even this latter rate would be below what has been proposed for Government borrowings.

Mr. BENNETT. Yes, sir; that is correct.

Mr. PILLION. Has not your interest rate been based upon the sales by the U.S. Government of its bonds? Is that not the basis for your interest rate on these power projects?

Mr. BENNETT. In our authorizing acts, which have spelled out an interest rate, the formula has not been consistent at all. Some of it has gone to longtime average; some has gone to the value at maturity; some has gone to 15-year averages. There has been no consistency.

Mr. PILLION. In the Colorado project does that require your charging interest at a rate determined by the sales of U.S. Treasury bonds over the past number of years?

Mr. BENNETT. I do not recall the specific language. The Secretary of the Treasury is required to certify the rate to us each year as of the end of June.

Mr. PILLION. Yes, based upon the sale of Treasury bonds.

Mr. BENNETT. I do not recall the exact language. It was at 2⅞ percent up until about 2 years ago when it went to a little over 3, and the one we had last June was 4⅛.

On the other hand, I point out that subsequent to that Congress did pass the Water Supply Act of 1958 which produces at the present time a rate of 2.7 percent.

Mr. PILLION. Is that being applied to the Colorado project?

Mr. BENNETT. No, sir; that is a general law.

Mr. PILLION. A general law in the absence of any specific law?

Mr. BENNETT. Right.

Mr. RABAUT. If this legislation should pass consideration would probably have to be given to place these new projects, at least, on a paying basis.

Mr. CANNON. Dr. Fenton?

Mr. FENTON. Mr. Chairman, I have just one more observation here.

OUTSIDE WORK BY BUREAU EMPLOYEES

Last year Mr. Jensen, on page 15 of the hearings, asked a question regarding employees of the Bureau performing outside work.

He said this——

Mr. CANNON. I believe we discussed that yesterday.

Mr. FENTON. Last year we had a list of the Bureau employees who had performed outside work which might be in conflict.

The question asked is why was not former Commissioner Dexheimer's name on this list?

Is it not true that he did perform work such as outside work?

Mr. DOMINY. Mr. Dexheimer, as I understand it, did serve as a consultant on his free time on a few occasions at the time he was employed with the Bureau of Reclamation in Denver prior to his being named as Commissioner of the Bureau of Reclamation.

As to why his name was not included in this list, this list was compiled in April of 1959 at a time when Mr. Dexheimer had already made arrangements to retire from the Federal service effective May 1, and he did not consider himself employed any longer after that date, and since this was furnished right at the close of April he did not submit the information which was furnished by the other employees.

He was given an opportunity to fill out that same information but declined to supply it on the grounds he was retiring from Government service.

Mr. FENTON. I believe you also know that the list you gave covered only part of the regional offices. Have you since obtained a similar list of these offices, and, if so, will you supply it for the record?

Mr. DOMINY. My recollection is that we did limit this to the Denver office of the Chief Engineer and Assistant Commissioner and the region 7 which is located there across the street from the Chief's Office.

We explained to the committee last year that this was not extended beyond these two Denver offices because of the time limitations and because the principal interest centered on our employees who had worked in Denver.

From my own knowledge, there is practically none of this activity in the other regions because the opportunity had not been presented to them for working with these consulting firms.

The consulting firms generally came to Denver where the big bulk of our engineering resources are, and therefore it just happened to be this one region which had a few of its men involved along with the Chief Engineer and Assistant Commissioner's staff.

Mr. FENTON. There were none in the other three?

Mr. DOMINY. Some limited work by men in the other regions but I do not think it would have added anything material to the information supplied, or to the information supplied to the Justice Department as they have investigated this matter.

Mr. FENTON. That is all, Mr. Chairman.

Mr. PILLION. Would it be in order for me to take up the question of the foreign currency program?

Mr. CANNON. We will reach that in its turn, Mr. Pillion.

NUMBER OF EMPLOYEES IN BUREAU

Mr. PILLION. Mr. Commissioner, do you have a limitation in the appropriations on the number of employees in your agency?

Mr. GOLZÉ. There are no limitations on the number of employees.

Mr. PILLION. How many employees do you have on your payroll at the present time, and how many are contemplated to be employed under the 1961 appropriations?

Mr. DOMINY. Mr. Golzé has figures here which would be responsive to that question.

Mr. TABER. Is there a page in these justifications which would have this item?

Mr. GOLZÉ. No, sir; it is not in the justifications. There is some personnel data in the printed budget, the green sheets. The total number of positions and average number of employees, are shown there.

Mr. PILLION. What is the average number of employees at the present time, for 1960 and the fiscal year 1961? Do you have that?

Mr. GOLZÉ. Average number of employees for the 3 years are: 1959, 9,807; for 1960 we are estimating 9,943 and for 1961 we are estimating 10,178.

Mr. DOMINY. Our employees fluctuate rather widely with our work program because of the engineers on the job, the number of inspectors, actual surveyors, and so on, tied into the workload.

Mr. PILLION. You contemplate an increase of 235 from this year to next?

Mr. GOLZÉ. Yes, sir.

Mr. DOMINY. In connection with the budget increase of about $54 million.

Mr. GOLZÉ. The figures I gave show all employees on an equivalent man-year basis.

Mr. DOMINY. Included in that figure is the seasonal employment during the summer months when we do increase our staffs for the short summer season.

Mr. PILLION. How many engineers are there presently employed in the Denver office?

Mr. GOLZE. We have in the Denver office engineers and technicians approximating 600, roughly about half of the staff.

GLEN CANYON DAM CONTRACT WITH MERRITT-CHAPMAN-SCOTT

Mr. PILLION. With respect to the contract for the Glen Canyon Dam with Merritt-Chapman-Scott, how did it happen that the contract did not make adequate provision for the question of doing away with subsistence pay and increasing the hourly wage pay by 50 cents? Why was that not taken into account by your attorneys and lawyers in drawing this contract?

Mr. DOMINY. Of course, Mr. Pillion, we think it was. We think the contract is quite clear on the question that subsistence, if paid, is a burden of the contractor, and that he assumes it without any recourse to pass that on to the Federal Government over and above his contract amount.

Also, we think it was quite clear that wages that he found necessary to increase above the levels prevailing as established by the Bacon-Davis Wage Act at the time of the award of his contract would be escalated by the Government assuming 85 percent and 15 percent to be assumed by the contractor.

The only unclear point is that the contractor claims 50 cents an hour of the total adjustment which he made in settling a strike is actually wages, and in our judgment there is a real question whether it is not subsistence by another name.

We do not think it possible to write contracts where people will not attempt to find interpretations to their liking.

Mr. PILLION. I understand that.

Commissioner, the average wage scale there was how much before the 50 cents per hour?

Mr. DOMINY. I will have to supply that. I do not have it with me. I do not want to give any rough estimate because that has varied quite a bit among crafts.

(The information referred to follows:)

Table showing wage rates, Glen Canyon dam and powerplant, before and after strike

[Rates shown cover 5 basic crafts (laborers, carpenters, teamsters, plasterers, operating engineers) in agreement between Merritt-Chapman & Scott and unions, signed Dec. 22, 1959]

LABORERS

Groups and classifications	Prior to strike of July 6, 1959	Effective dates of wage increases		
		Dec. 22, 1959	June 1, 1960	June 1, 1961
Group 1	$2.36	$3.04	$3.24	$3.44
Labor, general or construction.				
Tool dispatcher or checker.				
Flagman.				
Fence builder, highway.				
Chat box men.				
Dumpman and spotter.				
Riprap stoneman.				
Form strippers.				
Landscape gardener and nurseryman.				
Packing rod steel and pans.				
All helpers not herein separately classified.				
Group 2	2.445	3.125	3.325	3.525
Cement finisher tender.				
Cutting torch operator.				
Fine grader (highway, engineering, and sewer work only).				
Guinea chaser.				
Kettleman, tarman and bander.				
Powder-type concrete buggy.				
Group 3	2.53	3.21	3.41	3.61
Chucktender (except tunnel).				
Powderman helper.				
Concrete curer (impervious membrane).				
Sandblaster (pot tender).				
Spikers and wrenches.				
Window cleaners.				
Cesspool diggers and installers.				
Riprap stone paver.				
Creosote tieman.				
Group 4	2.59	3.27	3.47	3.67
Operators and tenders of pneumatic and electric tools.				
Vibrating machines.				
Chain-saw machines (on clearing and grubbing).				
Hydraulic jacks, and similar mechanical tools not separately herein classified.				
Asphalt rakers.				
Ironers.				
Cement dumpers (skip-type mixer or handling bulk cement).				
Pipe caulker.				
Cribber and shorer (except tunnel).				
Group 5	2.64	3.32	3.52	3.72
Pipe wrapper.				
Scaler (using boatswain's chair or safety belt).				
Group 6	2.70	3.38	3.58	3.78
Grade setter (pipeline).				
Driller.				
Jackhammer and/or pavement breaker.				
Pipe layer (excluding caulker).				
Rock slinger.				
Head rock slinger (plus 25 cents).				
Air and water washout nozzleman.				
Group 7	2.92	3.60	3.80	4.00
Driller (core, diamond, wagon, or air track).				
Powderman.				
Sand blaster (nozzleman).				
Concrete saw (hand-guided).				
Drill doctor.				
Gunman and mixerman (gunite).				
Group 8	3.08	3.83	4.03	4.23
Gunite nozzleman or rodman.				
Scaler (drillers).				
Group 9: Concrete road form setter	3.20	3.95	4.15	4.35
Group 10: Foreman	2.81	3.49	3.69	3.89

Table showing wage rates, Glen Canyon dam and powerplant, before and after strike—Continued

LABORERS—TUNNEL, SHAFT

[Rates shown cover 5 basic crafts (laborers, carpenters, teamsters, plasterers, operating engineers), in agreement between Merritt-Chapman & Scott and unions, signed Dec. 22, 1959]—Continued

Groups and classifications	Prior to strike of July 6, 1969	Effective dates of wage increases		
		Dec. 22, 1959	June 1, 1960	June 1, 1961
Group 1 Bull gang, muckers, trackmen. Dumpmen. Concrete crew (includes rodders and spreaders). Grout crew. Swamper (brakeman and switchman on tunnel work).	(1)	$3.19	$3.39	$3.59
Group 2 Nipper. Chucktender, cabletender. Helper for steel-form raisers and setters. Vibratorman, jackhammer, pneumatic tools (except driller).	(1)	3.29	3.49	3.69
Group 3: Grout gunman	(1)	3.37	3.57	3.77
Group 4 Miners, tunnel (hand or machine). Timberman, retimberman, wood or steel. Blaster, driller, powderman. Cherry pickerman. Powderman, primer house. Bull gang foreman. Steel-form raiser and setter. Kemper and other pneumatic concrete placer operator.	(1)	3.44	3.64	3.84
Group 5: Shaft and raise miner	(1)	3.69	3.89	4.09
Group 6: Shifter Watchmen	(2) 1.50	(2) 2.00	(2)	(2)

CARPENTERS

Carpenter journeyman	$3.36	$4.10	$4.30	$4.50
Saw filer	3.36	4.10	4.30	4.50
Shingler (carpenter)	3.36	4.10	4.30	4.50
Carpenter welder	3.485	4.225	4.425	4.625
Carpenter welder (certified)	3.56	4.35	4.55	4.75
Floor layer (finish)	3.61	4.35	4.55	4.75
Millwright and welder	3.61	4.35	4.55	4.75
Millwright welder (certified)	3.685	4.475	4.675	4.875
Piledriver	3.485	4.225	4.425	4.625
Power tool operator (other than hand portable but including automatic nailer) [1]	3.61	4.35	4.55	4.75

TEAMSTERS

Teamsters	$2.36	$3.04	$3.24	$3.44
Warehousemen Pickup truck drivers Industrial lift-truck driver (mechanical tailgate)	2.445	3.125	3.325	3.525
Dump truck driver, less than 8 cubic yards, WLC Flat rack truck driver, less than 10 tons, legal payload capacity	2.48	3.16	3.36	3.56
Buggymobile, 1 cubic yard or less Water truck driver, under 2,500 gallons Warehouse, clerk	2.505	3.185	3.385	3.585
Dump truck driver, 8 cubic yards but less than 12 yards Flat rack driver, 10 tons, less than 15 tons, legal payload capacity Shop greaser and/or tireman	2.53	3.21	3.41	3.61
Dumptor truck drivers, 6.9 cubic yards or less Dumperete truck drivers, less than 6.5 cubic yards	2.59	3.27	3.47	3.67

[1] These classifications not available for period before strike, but laborers working underground received 12½ cents per hour additional above the regular rate.
[2] 25 cents above highest man under his supervision.

NOTE.—For short period between June 1, 1959, and date of strike, July 6, 1959, rates paid were 50 cents per hour less than those shown in 2d column as rates effective Dec. 22, 1959.

Table showing wage rates, Glen Canyon dam and powerplant, before and after strike—Continued

TEAMSTERS—Continued

[Rates shown cover 5 basic crafts (laborers, carpenters, teamsters, plasterers, operating engineers), in agreement between Merritt-Chapman & Scott and unions, signed Dec. 22, 1959]—Continued

Groups and classifications	Prior to strike of July 6, 1959	Effective dates of wage increases		
		Dec. 22, 1959	June 1, 1960	June 1, 1961
Heavy duty repairman helper and/or welder helper and/or field equipment servicemen helper	$2.615	$3.31	$3.52	$3.75
Dump truck drivers, 12 cubic yards but less than 16 cubic yards Flat rack drivers, 15 tons but less than 20 tons, legal payload capacity	2.615	3.295	3.495	3.695
Water truck drivers, 2,500 gallons but less than 7,000 gallons Oil truck drivers and/or bootman, under 2,500 gallons	2.64	3.32	3.52	3.72
Transit mix drivers, under 3 cubic yards	2.70	3.38	3.58	3.78
Dumptor drivers, 7 cubic yards but less than 16 cubic yards	2.735	3.415	3.615	3.815
Oil truck drivers and/or bootman, 2,500 gallons but less than 7,000 gallons or more	2.785	3.465	3.665	3.865
Dump truck driver, 16 cubic yards or more Flat rack drivers, 20 tons or more, legal payload capacity Dumptor truck driver, 16 cubic yards or more Transit mix drivers, 3 cubic yards or more Dumpcrete truck driver, 6.5 cubic yards or more Dumpster truck driver, 16 cubic yards and over Euclid-type spreader truck driver Letourneau rocker dump driver	2.845	3.525	3.725	3.925
Ross carriers drivers and forklift drivers Field equipment serviceman	2.895	3.61	3.84	4.09
Oil truck driver and/or bootman, 7,000 gallons or more	3.015	3.695	3.895	4.095
Heavy duty repairman and/or welder	3.235	3.98	4.24	4.52
CEMENT MASONS				
Cement mason (including curb, gutter, and sidewalk and road formsetter where mechanical finishing equipment is not used)	$4.20	$3.95	$4.15	$4.35
Concrete troweling machine operator	3.345	4.095	4.295	4.495
Composition finisher	3.345	4.095	4.295	4.495
OPERATING ENGINEERS				
Group I Air compressor operator. Field equipment serviceman helper. Grade checker (excluding civil engineer crew). Heavy duty repair helper. Heavy duty welder helper. Oiler. Pump operator.	$2.615	$3.31	$3.52	$3.75
Group II Conveyor operator. Generator operator (welding machines). Power grizzly operator. Self-propelled chip spreading. Machine conveyor operator. Watch fireman.	2.735	3.44	3.66	3.90
Group III Concrete mixer operator, skip type. Concrete pump or pumpcrete operator. Dinkey operator, any type power. Field equipment serviceman. Motor crane driver. Power sweeper operator (self-propelled). Ross carrier or forklift driver. Skip loader operator (all types with rated capacity 1½ cubic yards or less). Wheel-type tractor operator (with or without attachments, except as otherwise classified).	2.895	3.61	3.84	4.09

Table showing wage rates, Glen Canyon dam and powerplant, before and after strike—Continued

OPERATING ENGINEERS—Continued

[Rates shown cover 5 basic crafts (laborers, carpenters, teamsters, plasterers, operating engineers), in agreement between Merritt-Chapman & Scott and unions, signed Dec. 22, 1959]—Continued

Groups and classifications	Prior to strike of July 6, 1969	Effective dates of wage increases		
		Dec. 22, 1959	June 1, 1960	June 1, 1961
Group IV	$3.065	$3.79	$4.04	$4.31
A-frame boom truck or winch truck operator.				
Asphalt plant fireman.				
Batch plant operator, power type, with rated batch capacity 1 cubic yard and over (where operator is directly responsible for the operation of power equipment).				
Central mix and batching plant operator, 1 cubic yard rated batch capacity and under (autocrete).				
Concrete or asphalt spreading, mechanical tamping, or finishing machine operator.				
Elevator hoist operator.				
Multiple-power concrete saw operator.				
Pavement breaker, mechanical compactor operator (power-propelled).				
Roller operator, all types except on asphalt pavement.				
Screed operator.				
Self-propelled chip spreading machine operator.				
Stationary pipe wrapping and cleaning machine operator.				
Group V	3.235	3.98	4.24	4.52
Asphalt plant mixer operator-boring machine operator, central mix and batching plant.				
Operator (over 1 cubic yard rated batch capacity).				
Conductor, brakeman, or handler.				
Crusher operator.				
Drilling machine operator, including water wells.				
Elevating grader operator, all types and sizes (Euclid loader, Athey force-feed loader).				
Heavy duty repairman or welder.				
Highline cableway signalman.				
Locomotive engineer.				
Operating engineer rigger.				
Pneumatic-tired scraper operator, all sizes and types (Turnapull, a Euclid, Cat. D–W, and similar equipment).				
Road oil mixing machine operator.				
Roller operator, on all types asphalt pavement.				
Soil cement road mixing machine (single-pass type).				
Stationary central generating plant operator (rated 300 kilowatts or more).				
Surface heater and planer operator.				
Tractor operator, bulldozer, tamper and scraper.				
Traveling pipe-wrapping machine operator.				
Trenching machine operator.				
Group VI	3.43	4.19	4.37	4.77
Concrete mixer operator, paving type, and mobile mixers.				
Crane operator, both crawler and pneumatic type.				
Crawler-type tractor (with boom attachment) operator.				
Grade-all operator.				
Highline cableway operator.				
Motor grader operator (any type power blade).				
Mucking machine operator.				
Piledriver engineer (portable, stationary, or skid rig).				
Skip loader operator, all types, rated capacity over 1½ cubic yard.				
Specialized power-digger operator (attached to wheel-type tractor).				
Universal equipment operator (shovel, backhoe, dragline, clamshell, etc.).				

Mr. PILLION. The subsistence paid was cut off by Merritt-Chapman & Scott. How much did that amount to on an hourly wage basis?

Mr. DOMINY. They had been paying up to $7 a day subsistence. Depending upon the craft, or free board and lodging.

Mr. PILLION. For an 8-hour day?

Mr. DOMINY. If you figure it on an 8-hour day—they sometimes worked more than that and still paid $6 per day subsistence regardless of the hours.

Mr. PILLION. Then subsistence pay was roughly 70 cents an hour?

Mr. DOMINY. Roughly. Actually on that basis, it would come to 75 cents per hour.

Mr. PILLION. So Merritt-Chapman & Scott cut that off and added 50 cents to the hourly wage scale, and if their contention prevails then the 85 percent would be paid for by the Government, roughly 40 cents of that paid by the Government, so they would be paying only 10 cents, and having paid 70 cents before, they would be saving 30 cents an hour roughly by this maneuver.

Mr. DOMINY. I think your calculations are roughly accurate.

Mr. PILLION. I assume you are, but I will just ask this question for the record, Commissioner:

Are you taking all possible legal steps to protect the interests of the Government so that Merritt-Chapman & Scott are not paid any part of this differential here pending the final adjudication by the courts and that you pay strictly upon your contentions rather than based upon their contentions?

Mr. DOMINY. Yes, sir. During the progress of the strike negotiation the company officials on several occasions sought an advance assurance from the Bureau of Reclamation's contracting officer that we would consider the settlement being proposed of 50 cents an hour increase to fall within the requirements of the escalation feature of the contract.

On each of those occasions the contracting officer for the Bureau replied both in the verbal conferences and by letter that the settlement of the strike was strictly within the jurisdiction of the contractor and the unions and that Reclamation was not a party to the dispute, and once the dispute was settled then Reclamation would interpret the obligation of the Government under the contract in light of that settlement.

When the first voucher was presented to us a little over a month ago with the 50 cents an hour in the voucher for 85 percent escalation of the increased wage to be picked up by us, we did not pay escalation on the 50-cent component of the wage increase, but advised the company that this was being looked into with diligence and that we hoped to give them a final position of the Bureau promptly.

Mr. PILLION. I want to commend you for the position you have taken on that.

Mr. DOMINY. Thank you, sir.

At that time we made arrangements to present the matter to the Comptroller General for his advice.

We have supplemented the material originally supplied to the comptroller with additional data that we have been able to gather pertinent to the negotiations.

Mr. PILLION. How much irrigated lands are now being operated by the Bureau?

Mr. DOMINY. That we are operating? We are still actually performing the operation and maintenance of distribution systems serving about 1 million acres.

Mr. PILLION. That is an awful lot of land to be holding which is not turned over.

Mr. DOMINY. Well, a big chunk of that is identified with projects still under construction, such as Columbia River Basin, and some of the Missouri Basin units.

About the only one of the old projects that we are operating of any size is the Rio Grande project in New Mexico and Texas. They are advancing the funds for this. It is not a drain on the appropriation item annually, nor is there any loss to the Treasury as a result of our operation, but they are insisting, Mr. Pillion, that because of the Mexican lands across the river and because of the conflict between two States that it just is not feasible for the project farmers to take over operation and maintenance responsibility.

Mr. PILLION. How many acres are there in that?

Mr. DOMINY. About 170,000 acres.

Mr. PILLION. That still leaves 830,000 you have not been able to turn over to irrigators.

Mr. DOMINY. We would be glad to put in a list of those we are still operating and the status of construction, such as in the Columbia Basin, where we are operating 400,000 acres. That is a project still under construction.

It has not been practical to turn that over to the water users while we are still extending the laterals and drains.

(The information follows:)

Irrigation distribution facilities operated by the Bureau of Reclamation, acreage served, and approximate status of construction

Project, division, and State	Irrigable acres, end of fiscal year 1960 [1]	Approximate status of construction of project distribution facilities
Gila, South Gila unit, Arizona	2,088	Completed.
Yuma, reservation division, California	14,620	Completed except for drainage works.
Minidoka, North Side pumping division, Idaho	74,642	85 percent complete.
Michaud Flats, Idaho	9,655	Completed.
Middle Rio Grande, N. Mex	121,680	85 percent complete.
Rio Grande, N. Mex-Tex	178,196	Completed.
Weber Basin, Utah	17,000	40 percent complete.
Columbia Basin, Wash	411,100	Do.
Yakima-Roza division, Washington	[2] 72,511	Completed except for drainage works.
Eden, Wyo	16,400	Do.
Riverton, 3d division, Wyoming	16,585	Do.
Missouri River Basin	34,240	
Angostura unit, South Dakota	(12,296)	Do.
Crow Creek unit, Montana	(4,545)	Do.
Fort Clark unit, North Dakota	(2,039)	Completed.
Helena Valley unit, Montana	(10,223)	75 percent complete.
Bostwick division, Nebraska-Kansas	(337)	50 percent complete.
Webster unit, Kansas	(4,800)	54 percent complete.
Total	968,717	

[1] Full and supplemental water.
[2] Scheduled for transfer to water users January 1961.

Mr. PILLION. Are you operating the Riverton project?

Mr. DOMINY. We are not operating any of it. The entire division has been or is being transferred now.

Mr. PILLION. Do you think you will have difficulty in turning over some of these irrigated lands to the irrigators?

Mr. DOMINY. The only place we have had a major problem is this Rio Grande project and the reservation division of the Yuma project where Indian lands are involved. Basically, we have had excellent cooperation from the water users. They are anxious to take over, and we normally can accomplish that within a reasonable and practical time.

Mr. PILLION. Thank you, Mr. Commissioner.

I have nothing further, Mr. Chairman.

Mr. CANNON. We will resume at 2 o'clock.

TUESDAY, MARCH 1, 1960.

Mr. CANNON. The subcommittee will be in order.

Mr. Commissioner, will you give us a brief résumé covering the matters discussed in this morning's session?

GENERAL INVESTIGATIONS PROGRAM

Mr. DOMINY. Mr. Chairman, if it pleases the committee, I think the way I would like to present that résumé is in connection with the general investigations program presentation. Mr. Palmer has worked up some charts and graphs touching on the important element which we discussed this morning and in which Mr. Pillion expressed particular interest. I think if Mr. Palmer proceeds and presents that preliminary to his discussion on the general investigations program, that would give the committee the opportunity to go into the matter at such length as it desires.

Mr. CANNON. Mr. Palmer.

Mr. PALMER. Mr. Chairman, I am pleased to have this opportunity to discuss some of the questions which are fundamental to the general investigations program and, for that matter, to the entire reclamation program.

By way of dismissing it, so it will not come up again, we noted yesterday the transfer of $254,000 from the general investigations program to the C. & R. program to handle advance planning.

In terms of organization and format, this represents the only major change over previous years in the planning portion of the budget.

In regard to the 15-percent limitation on changes in the planning program, we are making every effort to comply with both the spirit and the letter of that limitation. We are pleased to report that, with careful estimating and budgeting, coupled with a very critical review of all proposed changes, we again have substantial progress to report to the committee.

The budget now before you reflects only two increases in fiscal year 1960 of more than 15 percent which were approved by the Appropriations Committee and nine which were within the authority of the Secretary of the Interior to approve. By comparison, when the

budget was submitted last year, 13 increases of more than 15 percent were pending before the committee, and 21 increases had been approved by the Secretary. We will continue to stress the importance of a soundly conceived and tightly administered general investigations program.

In emphasizing this, however, let me point out that efficient use of planning funds and personnel requires a reasonable measure of program flexibility. The planning assignment given to the Bureau of Reclamation is a highly complex one. It involves detailed hydrologic analyses to evaluate the water supply. We must know the characteristics of the stream in terms of its flood protection requirements and at the same time plan to balance out its yield to obtain optimum conservation values for farms, towns, and cities. Our planning must include land classification and consider existing as well as adapted uses, and must measure their needs for irrigation and drainage. We must consider the other consumptive requirements for water, such as for municipal and industrial uses, and give full weight to the consumptive values, such as those accruing from power, recreation, and fish and wildlife.

Most complex of all, we are required to plan so that the reimbursable costs under congressional authorization will be returned to the Treasury by the three paying partners of reclamation: Irrigation, hydroelectric power, and municipal and industrial water.

We must evolve a land-use plan, a water-use plan, a financial plan, and a feasibility plan. We must sample and keep abreast of local interests. We must consider the project potential in terms of silt control, salinity control, and pollution abatement. We must measure the impact of the proposed project on local, regional, and national economies, on the yield of compact-covered streams domestically and upon international agreements as they control streams, as well.

This is multiple-purpose planning. It must be done in the setting of constantly changing conditions. It should be accorded reasonable flexibility.

It is very difficult to estimate with a high degree of accuracy the total cost of an investigation, particularly at the start, or the annual fund requirements 18 months in advance of doing the work. Unfavorable foundation conditions, drainage problems, changes in local interest, or other factors encountered in the course of an investigation can necessitate major changes in the plan and fund requirements.

In the past, the committee has been particularly interested in new investigations proposed in the budget and changes in total estimated cost of investigations. A detailed justification for each of the investigations in the general investigations program that are being initiated or resumed in fiscal 1961 has been furnished the committee staff. These new investigations have been very carefully screened and in formulating our budget the funds were concentrated, insofar as practicable, on advancing going work.

As a result, there are only 13 new investigations being proposed in the general investigations program, with no new starts under the Missouri River Basin, exclusive of the 6 items in the engineering research program, as compared with 18 new items under the general investigations and 4 items under the "Missouri River Basin" item during fiscal year 1960.

Members of the committee frequently ask why planning work must be done now. This is a logical question, and the answer is found in four equally logical considerations. These four conditions which I think present the answers are: (1) Rapidly increasing population coupled with a steady loss of cropland to urban growth of well over a million acres per year, (2) continued high and improving living standards, (3) staggering increases in water requirements, and (4) leadtime required before actual need to accommodate planning, authorization, negotiation of requisite contracts, and the construction of the project. I have a series of charts to demonstrate these factors.

(Off the record.)

POPULATION TRENDS COMPARED WITH AGRICULTURAL DEVELOPMENT

Mr. PALMER. This chart dates everything back to 1880, and rates it at 100 on an index rating basis in terms of land use for crops, which is this dotted line. Our number of acres used for the production of crops increased along with population to about 1920, and you see that since then it has remained relatively constant. That is around 400 million acres a year of land actually planted and harvested for crops and idle cropland. Additionally, there are pasture acreages and acreages now in timber and a number of other tenure classes to make up the equivalent of about 500 million acres of potentially tillable land.

Also, still speaking of this first chart, let me point out the relationship I mentioned, the first one of these, the rapidly accelerating population. The grid is on a semiratio basis. The U.S. rate of expansion is depicted by the heavy dotting. The lighter dots show the 17 western States rate of expansion. To give you some figures, this would top out at around 42 million, and this around 180 million, as I recall, as of now.

Mr. CANNON. Would you say we now have under cultivation, or capable of cultivation, the largest acreage in our history?

Mr. PALMER. Mr. Chairman, if you had left that statement without adding "capable of cultivation," I would have had to say "Yes," but we have been losing appreciable acreages which take away from our potential as the needs of society have expanded, as we have built new cities, roads, and airports, as we have lost lands through soil depletion and soil erosion. So we do not have as high a potential now we once had, but we certainly have more land susceptible of actual crop production than ever before.

(Off the record.)

Mr. CANNON. Give us the number of arable acres at the present time, the loss per year, the minimum acreage required per individual to feed the present population, the approximate date at which the present population will reach the point at which we will not have 2 acres per individual.

Mr. PALMER. I would be pleased to do this, and I would prefer to check it out for the record, Mr. Cannon.

(The information requested follows:)

AGRICULTURAL LAND IN RELATION TO POPULATION IN THE UNITED STATES

Agricultural land in the United States used for crops, soil improvement, and idle and fallow land approximates 400 million acres. Additionally, there are 70 to 75 million acres of cropland used for pasture that is potentially available for crop production. This, then, represents a total of about 475 million acres of potential tillable land.

The U.S. Department of Agriculture estimates that approximately 1,200,000 acres of cropland is being lost annually to urban expansion, industrial, highway, airport, and other nonagricultural uses. Additionally, the Department of Agriculture reports that about 500,000 acres of land is lost annually by soil erosion and soil blowing and other types of soil deterioration. These two classes of losses aggregate roughly 1,700,000 acres annually.

On the basis of the presently estimated area used for crop production, 400 million acres, and an estimated present population of about 180 million people, there is available about 2.2 acres of cropland per capita. Based on recent projections of population, the point of 2 acres per individual probably would be reached about 1967–70.

Mr. TABER. I wonder if I might ask a question here. Have you taken into consideration the advances which have been made in productivity of the soil over the entire United States?

Mr. PALMER. Yes, sir, Mr. Taber.

Mr. CANNON. And, if you will, add methods of cultivation.

Mr. TABER. That is correct.

POPULATION GROWTH IN RECLAMATION STATES

Mr. PALMER. Let us put up chart 2 here, which I think gets us more nearly into the area we are talking about. We are speaking still in terms of population growth. From 41 million people in the 17 Western States in 1957, projected to 1975, it would increase to 60 million people. If you project this same 17 Western States area on the basis of Department of Commerce, Bureau of Census, projections, you end up with 130 million people in this area in 2010. In terms of U.S. totals, using the same source, based on median projections as to fertility, mortality, and immigration, you can estimate 230 million by 1975 and by 2010 the number will increase to 370 million people.

Mr. MAGNUSON. Are those percentages in relation to present conditions?

Mr. PALMER. Yes. They are in terms of the 1957 figure of 41 million.

Now let us turn to chart 3, please.

PROJECTED AGRICULTURAL REQUIREMENTS

Again using the "50-Year Look Ahead at U.S. Agriculture," a report of the Department of Agriculture, and trying to get this mass of statistics into a position where it can be interpreted in terms of acres, which I think will answer some of the questions you have asked, Mr. Taber, the black bar is the acreage available, the shaded bar being the acreage needed. This is all in terms of equivalent average crop acres.

Mr. CANNON. What is the shaded bar?

Mr. PALMER. The acreage needed—the amount actually needed in that year.

Mr. TABER. You mean food products?

Mr. PALMER. The product of this agricultural plant of ours—pasture and all other factors being weighted. This is the 1935–39, showing us having a surplus of about 142 million acres of equivalent average cropland; 1956 shows it to be about in balance, with the slight—the width of that line, actually—difference. The 1975 projection, shows a need for an additional 160 million acres, Mr. Taber, which the Department of Agriculture estimated could be achieved by improved technology, better planning, better culture, better feed, better fertilizers, better equipment, and better operations.

Mr. TABER. How do our methods of production fit in with what is done on the other side of the water?

Mr. PALMER. We have run some comparisons on the basis of specific crops like potatoes, how many bushels per acre they produce in Japan, in Germany, and how we show up. Of course, it is within that area that the Department of Agriculture projected the achievement of the equivalent of 160 million acres in production.

At the time they prepared this chart, they estimated we would get the equivalent of 25 million acres more between now and 1975 from increased and continued irrigation and drainage. At that time they said there were about 23 million acres that they did not know for sure where they would get it.

This called, as you see, for 213 million acres of additional land equivalent over and above that within the agricultural plant, the 506 million acres now available for use as of 1975.

Mr. CANNON. How many additional acres will we require in 1975?

Mr. PALMER. A total of 208 million equivalent average acres of which 160 million come through improved technology, 25 million from drainage and irrigation, and 23 million from sources yet unknown. Agriculture says that this latter acreage is now all in sight, probably by new and improved technology or by cutting timbered lands, which they have some hesitation to recommend.

Projecting for 50 years from now, and assuming that you get the 714 million acres equivalent, by that time they say you will need 1,131 million acres, or an increase in terms of equivalents of 417 million acres, some of which we will get from technology, some maybe from hydroponics, as was mentioned this morning, some of it from cultural intensification, some of it from irrigation, some of it from cutting down part of our forests.

No one is saying we shall not be fed by 2010, but the thing I was trying to get into this equation is that using these projections, you end up with figures which are quite staggering in terms of the relatively short time interval.

As far as the Bureau of Reclamation is concerned, we are now supplying water to 8 million acres-plus for full and supplemental supply. On the USDA figures, we have to get the equivalent of 25 million new acres between now and 1975, or whatever amount that can be done. Let us have the next chart, please.

Mr. PILLION. Would it be in order to ask a question, Mr. Chairman?

When were these charts prepared, Mr. Palmer?

Mr. PALMER. These are dated April 1959.

Mr. TABER. About a year ago.

Mr. PILLION. Prepared by the Department of Agriculture?

Mr. PALMER. Yes. That is prepared on the basis of data supplied by the USDA or U.S. Department of Commerce.

Mr. PILLION. And they have been so awfully wrong at times, including their projections of population, which can, of course, be very wrong. All kinds of elements of error can creep into such a projection. You would not swear on a Bible that these will be correct 20 or 50 years from now, Mr. Palmer?

Mr. PALMER. Of course not.

Mr. PILLION. It is just a projection by experts who have some self-interest in it.

Mr. PALMER. If I might indulge in a little personal experience on the thing, I used to be on a debating team in college, and at that time we were debating an issue which called for population estimates. Based on the best projection then available we were talking about 130 to 150 million people in the United States as being the level where we would "top out." So I think the entire burden of past experience would dramatize very highly that if our demographers and our statisticians have erred, quite generally they have erred on the low side.

Mr. PILLION. Mr. Malthus erred quite a bit.

Mr. PALMER. Yes. I remember that fellow, too.

Mr. PILLION. Am I to understand from the shaded area for 1956 that the food requirements of that time or the acreage or potential or ability to meet food requirements is even with the food requirements themselves in 1956?

Mr. PALMER. This simply says the plant was virtually in balance at that time.

Mr. PILLION. Actually, it is not in balance, Mr. Palmer. We have an excess, a great deal of excess capacity in this country to meet our needs.

Mr. PALMER. On this I agree with you completely, Mr. Pillion. These are figures put out by the Department of Agriculture. If you want to assume a 5-percent surplus, you have this bar a little way up from that, but not too much.

Mr. PILLION. Actually, if prices were raised just 5 or 10 percent, any number of abandoned farms in Ohio, New York, Pennsylvania, with just a little irrigation at a rate of $50 or $75 an acre instead of $500 an acre, as we are doing in the West, could produce through the effort of the farmers because they would get a sufficient price to make it worthwhile to farm these acres which are today being abandoned. We have countless instances where a farmer will intensely cultivate maybe 50 or 75 acres instead of his full capacity of 200 or 300 acres.

So with today's lands, without adding an acre, you could increase production another 25 percent with present technology, with the present machinery. All it needs is a price incentive. Is that not just about what it comes down to?

Mr. PALMER. There is no question that price incentive would have a great deal to do with it. There would have to be a price incentive to justify the application of new techniques. These are considered in the 160-million-acre figure mentioned earlier.

Mr. PILLION. All you need is a little shortage now and then, and the farmer goes right into planting, whether it is cabbage or apples. "We got a good price last year, and we hope to get a good price next year." The farmer tries to outguess the market all the time.

Mr. PALMER. There is no question that you are correct, Mr. Pillion. This, of course, is the basis of the USDA projection that they can get the equivalent production of 160 million acres between now and 1975.

Mr. PILLION. Mr. Palmer, from my discussion here with you, I consider that chart to be wholly invalid. Just from my little discussion with you here, the figures are untrue, theoretical, conjectural, speculative, and, to me, it would have no validity whatever.

Mr. PALMER. Mr. Pillion, this certainly——

Mr. CANNON. How could we produce a more reliable, more dependable or more accurate chart, Mr. Pillion?

Mr. PILLION. That, of course, is very difficult, because this is a speculative situation as far as the growth of population is concerned. That depends upon any number of social and even religious attitudes.

On the question of agricultural production, I can see no immediate—when I say "immediate," I am talking about 10, 15, or 20 years—any immediate need for expanded acreages at such cost.

Mr. PALMER. Mr. Pillion, the only thing I would like again to stress is that these figures put out by the Department of Agriculture indicate that you will have to get virtually a 50-percent increase in terms of equivalent production between now and 1975, in 19 years. That is a very substantial increase.

Mr. PILLION. I recollect reading, I think in one of the agricultural yearbooks, one of the recent editions, that some expert says there is no foreseeable time when our agricultural production cannot meet our population growth.

(Off the record.)

Mr. CANNON. An acre of land in 1960 is not an acre of land in 2010.

I was in Germany on one occasion. I was interested in agriculture and went out into the country. We went out over the autobahn.

I observed two things there. In the first place, all distribution had broken down and there was no medium of exchange. Money was valueless. Every day some man for each family in the city had to get out in the country and, in some way or another, get food to take back.

The farmers were on top of the world. They were masters of the situation. They were the only people who had food to eat or to sell. In some farmers' homes and in their barns they had rooms that were filled with furniture, bric-a-brac, statuary, paintings, rugs, everything in the world that the man in the city could bring out in exchange for food.

That situation does not concern us because that probably will never occur again, but here is the situation that did concern me: That land had been under cultivation for 3,000 years. Every bit of the substance in the soil had been exhausted. Nothing was left. The soil was merely a vehicle. If you put into it half enough fertilizer, you raised half a crop. If you put into it three-fourths of the fertilizer required, you raised three-fourths of a crop. If you put into it enough fertilizer you could raise a full crop. But you took out in crops only what you put in in fertilizer.

(Off the record.)

Mr. CANNON. If we permit the fertility of our soil to deteriorate to the point where all substance is exhausted and the soil becomes merely a vehicle, we will be dependent on commercial fertilizer. So your acre of land in 1960 is not your acre of land necessarily in 2010.

Of course, we have greatly improved methods of cultivation. For example, if Henry Wallace or somebody else had not discovered the principle of hybrid pollination, we could not raise enough corn in the United States today to supply our needs; but through hybrid seed, we have tremendously expanded the production of that basic crop.

As you very well say, you cannot definitely and positively project into the future the number of acres we will require under cultivation at some future time, but this does give us some idea. No claim is made that these figures are positively accurate, but we are given some idea, it seems to me, perhaps in the most graphic way in which it can be presented, of what our situation is, what it will be in the future, what we should strike for, and what this committee should take into consideration in expenditure of funds in this budget.

Mr. Palmer.

Mr. PALMER. Thank you, Mr. Chairman.

In terms of the various types of produce which our land would be required to yield, this last chart gives the percentages of increase which will be required by these major groups. For instance, we will need 237 percent of our present production of meat animals in 2010 to feed our increased population at the improved living standard which I mentioned a little earlier. And so on down this chart.

May we see the next two charts together in order to get along with this?

ADDITIONAL CROPLAND NEEDED

If you take these figures without debating their ultimate accuracy, and translate them back in terms of acres, by 1975 you would have to have the equivalent production of more than the area of four of our important agricultural States.

Mr. CANNON. Give us that statement again.

Mr. PALMER. To produce this 208 million acres equivalent that we would need under the USDA projections by 1975, we would have to add to our agricultural plant the acreage of more than four of our important agricultural States, the four shown here in white. This is seeking to make this need more understandable.

If you project that to 2010, you need more than the acreage of the nine-State area mapped in white on the other chart. To stress this again, you will need the equivalent of 208 million average acres, by 1975, which in terms of average acres is the area of those four States. And the same way on the other chart, except figures are for 2010.

Let us go to the next chart.

PROPORTIONS OF MAJOR FRUIT AND VEGETABLE CROPS GROWN IN THE 17 RECLAMATION STATES

In the matter of living standards, nutritionists tell us that 10 percent of our families have major diet deficiencies—29 percent need greater allowances for calcium; 25 percent need more vitamin C; from 15 to 20 percent have below the recommended levels of vitamin A, thiamine, and riboflavin. Many of these elements are available in protective foods—the lean meats, fruits, vegetables, and dairy foods, which are major products on irrigated farms. You will note that these I am talking about are not in surplus now.

So I thought you might be interested in seeing this chart. Bear in mind, these figures are also from Department of Agriculture statistics. They show total production. In other words, you get the 17 Western State totals, Federal irrigation, private irrigation.

If you take these listed crops below the line, you get all of your almonds, apricots, artichokes, dates, English walnuts, figs, filberts, garlic, honeydew melons, raisins, hops, lemons, and olives. This, of course, is in terms of commercial production. You might find some sizable acreages of some of these crops in some localities, but these are the USDA figures that you get virtually 100 percent of your production of this group in the 17 Western States area in commercial production.

Now all the seasonal crops. You can check the list. For example, you are getting about 45 percent of the total apples. In the case of fresh asparagus, you get roughly 52 percent. If you take your early spring and midspring asparagus, you get it all from the 17 Western States. In the case of broccoli and lettuce, which are crops we have now learned to appreciate in our diet, you get in the high nineties of your early spring total available from the 17 Western States. Summer lettuce is in the high seventies or low eighties. Early fall lettuce is back up into the high nineties. And late fall lettuce, virtually all of it.

As you go on down the list and check out those crops similar relationships evolve. These crops are not on the surplus list. This is what irrigation does for you.

It would be well, I should think, to consider, while we are talking about surpluses as we did this morning, to pinpoint and identify what some of those surpluses are.

RECLAMATION AND CROP SURPLUS

This chart shows figures from Commodity Credit Corporation records. This again is as of April 30, 1959, when there was $8.9 billion of crops in Commodity Credit Corporation loans and inventories. It is broken up in about this kind of pie chart: 35 percent wheat, 28 percent corn, 6 percent tobacco, 14 percent upland cotton, 17 percent all others.

If you take the reclamation contributed—this is actual Bureau of Reclamation projects, not the 17 Western States—you get about 1.8 percent. When you break it out by crops, there is no tobacco produced under western irrigation at all, and none on reclamation projects. In terms of corn, 0.8 percent. These percentages can be expanded or contracted slightly depending upon how you treat corn fed on the farm. This is particularly true when you get to the wheat because, as the Commissioner pointed out this morning, irrigation does not produce good milling wheat. It is a soft wheat. Wherever it is planted, it is used primarily to balance out a rotation and for on-farm feeding. So, while we show a percentage of reclamation-produced wheat, most of it is not marketed as such, but is fed on the farm.

Reclamation is a serious producer of cotton with 6.8 percent of upland cotton coming from irrigated acreage. That is cotton produced on allotted acreages. It is a very superior kind of cotton.

In passing, it should be noted that all of the long-staple cotton—the Egyptian-type Pima cotton—comes from the Southwest. Again not reclamation, but southwestern irrigation.

Mr. CANNON. We produce in the State of Missouri more cotton per acre than any other State in the Union without irrigation. It is only by irrigation that you produce more cotton anywhere than you produce per acre in the State of Missouri.

While the quality of wheat on irrigated land does not equal the quality of wheat under normal conditions, would the same apply to the quality of cotton?

Mr. PALMER. Qualitywise, irrigation cotton has a slight edge over nonirrigated cotton because of two situations: The growing conditions during the first 4 to 6 weeks determine the length of the filament, the length of the fiber, and the growing conditions in the ensuing 4 to 6 weeks determine the quality of the fiber, whether it has frailties in it. The irrigation cotton has a slight edge, because the growing conditions may be controlled throughout the entire 8- to 12-week critical period. As a consequence, there is less shattering on the spinning frames, and the cotton is rated as high quality. It is no different produced elsewhere if the growing conditions are optimum. It is just that you have one more control under irrigation that you do not have under dryfarming.

Mr. MAGNUSON. One question, please.

The big circles on this chart represent surpluses?

Mr. PALMER. This is the amount of the Commodity Credit Corporation loans and inventories. This is the amount of holdings represented by the four crops by the Commodity Credit Corporation. There is a difference—the loans $8.9 billion, and the holdings $7.4 billion.

Mr. MAGNUSON. The small circles are total production?

Mr. PALMER. The small circles are total production of each of these crops factored out by the amount produced on reclamation projects.

(Off the record.)

ESTIMATED FUTURE WATER USE

Mr. PALMER. We have two more charts which might be helpful. I mentioned the staggering increases in the water requirements. These two charts put out by the Department of Commerce, Business and Defense Services Administration, project water requirements in 1975. They break them out by irrigation, farm and rural use, public water supply, industrial and miscellaneous, and steam-electric power. The growth in the water requirement is faster than the population growth, rapidly as the population is increasing.

This indicates clearly that the requirement for water between now and 1975 will be up about 50 percent. This does not project beyond 1975. We can all guess as to what might be the future.

There are two or three interesting relationships on these charts. One is, if you go to the next one, this big wavy area is the source of water, indicating it has to be drawn from surface supplies. In other words, there is no such thing as an unending subsurface source of water. We shall get most of our water by better control and utilization of our surface flows.

Mr. CANNON. Again, we shall get most of our water how?

Mr. PALMER. From control and utilization of our streams and lakes, our surface supply.

Mr. CANNON. What will be the effect of the elimination of salinity through these methods we are now introducing? Of course, it is very expensive now, but do you expect in the future to extract salt from water at a cost which will permit the water to be used ordinarily?

Mr. PALMER. If you assume, Mr. Cannon, that 50 cents to $1 a thousand gallons is a permissible rate for municipal and industrial use, you are within the price area now that desalinized water is in sight. But if you are talking in terms of vast quantities for irrigation, it is a long, long way away. Unfortunately, our unending supplies of sea water are at sea level, and we still have the problem of how we shall pump it these great distances to get it to where we have the maximum demand for water for irrigation. There will be replacement to the delivery of water to major cities of the Nation. Being at sea level and at the ocean, no doubt much of their water can be desalted sea water thus permitting release of water which originates at higher elevations and its use for diversion elsewhere for irrigation.

As to the leadtime in planning reclamation projects, most of the projects we are now investigating could not reach full production for 10, 20, or more years. A few of even the smaller ones, as the Commissioner pointed out this morning, could be operational in less than 10 years. If we start now with an investigation and run it until we receive the authorization, get the initial appropriation, construct the project, and put it into operation, few of them could go that entire route and be completed in less than 10 years. There are a few very small ones which could be.

In passing, I also note, as was noted this morning, that the Columbia Basin project is less than half completed. When I joined the Bureau staff 15 years ago, I was amazed in reading some of the old transcripts and old records to find that the Columbia Basin project was in the preliminary planning stages in 1903.

So this is not something that you can talk about in terms of, "Let's suspend the program, and 5 years from now turn on the switch again and all of a sudden start grinding out completed projects." There is a logical time of development which has to be given full weight and consideration, and you cannot economically shortcut that time.

That concludes my statement here.

I would like, however, to refer back to this first chart again.

This morning the Commissioner pointed out to the committee that the reclamation law was about the only major Federal emphasis on the family-size farm. A dotted curve on the first chart shows the number of farms in the country. With the land used for crops remaining about the same and the number of farms going down, the conclusion is obvious. You just have fewer farms and larger farms.

Thank you very much.

Mr. CANNON. Mr. Kirwan.

Mr. KIRWAN. No questions.

Mr. CANNON. Mr. Magnuson.

Mr. MAGNUSON. No questions.

Mr. CANNON. Mr. Taber.

Mr. TABER. No questions.

Mr. CANNON. Mr. Pillion.

Mr. PILLION. I am sure, Mr. Palmer, the charts were prepared with a great deal of sincerity and with an awful lot of work. However, I think I must drop a note of caution. They were prepared, I am sure, for the purpose of proving the need and the necessity for reclamation and for additional acreages. If I had the task of preparing a case on the opposite side, I am sure with half the experts I or anyone else could probably prepare an equally good case proving the exact opposite.

You think you have made an excellent presentation. No doubt the basis for it has some justification. But I am sure that many of the arguments and many of the bases for the conclusions are not valid in my conception of the whole agricultural picture.

Mr. CANNON. Off the record.

(Off the record.)

Mr. PILLION. I appreciate the fine presentation made here today, but I certainly cannot conclude that the agricultural products of the 17 reclamation States are not adding to the total agricultural surplus. The question of what the Commodity Credit Corporation has purchased in surplus is not the sole or valid test of how surpluses are created. It is a case of political determinations made by Congress. That is why you have surpluses of those particular products. The farmers have grown them particularly because they get the subsidies, and they get a guaranteed support and a guaranteed purchase.

So far as the reclamation situation is concerned, take, for instance, tomatoes. Indiana was always the leading tomato-producing State. New York was a large one, and so was New Jersey. But due to the irrigation and the cheap labor costs in California, that has pretty well shifted to California.

Those are partly due to political reasons, partly due to the great subsidization of irrigation of some of the lands of the west. If the political factors had not been brought into play, the production could have been cheaper in some of these Midwestern and Eastern States than in the west if you took just the natural factors that you have to work with. When you place in the picture the political factors and start subsidizing these acres and irrigating them at a cost of $300 or $400 or $500 an acre, you find a different picture. You crowd the more economic producer out of the picture, which is what is being done in many instances.

The same goes for apples, for instance. New York State at one time was a great apple producer. Now it has shifted to the Northwest for various reasons. These political factors enter into the picture.

Mr. CANNON. One of those factors being irrigation.

Mr. PILLION. Yes, a major factor leading to the surpluses that we have.

I must point out that the United States is one agricultural market. Whether I produce broccoli, tomatoes, cotton, corn, or any other product, I am adding to that surplus, because if I did not produce it, we would not have the surplus and somebody else could produce the same thing. The farmer is very flexible. He can go from flax to hogs to cattle, anything that you can make a dollar on, and that is shipped throughout the country. We have a common market, except

as it is tempered or changed by the political picture, such as our price support programs.

Mr. PALMER. Mr. Pillion, I have to tell you that the work which was put into the development of this material was 100 percent objective.

Mr. PILLION. I appreciate that. The gentlemen who prepared these were sincere. They tried to do an honest job.

Mr. PALMER. I want to stress also that some of these factors you mentioned, while not arguing them at all——

Mr. PILLION. Surely.

Mr. PALMER. That the farmer's flexibility is not so complete as you imagine. The Wheat Belt, the Corn Belt, the Cotton Belt, and the Tobacco Belt grew up in part because of physical conditions which there existed. There they have established a tradition. The people know how to produce wheat, corn, cotton, and tobacco. They have the equipment to produce wheat, corn, cotton, and tobacco, and they have the know-how.

Mr. PILLION. I admit that.

Mr. PALMER. You cannot say they could grow everything from flax to tomatoes, because it is not that easy to shift.

Mr. PILLION. I do not say he has complete flexibility. What is the use of growing tomatoes if you do not have a processing plant within a deliverable area? You cannot do it because it is not economic. You must build up communities which will also process these. I appreciate that. I am talking about the overall picture.

Mr. Chairman, thank you very much.

GENERAL INVESTIGATIONS

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Engineering and economic investigations:			
(*a*) Reconnaissance	$202,541	$369,874	$436,907
(*b*) Basin surveys	873,702	468,342	315,770
(*c*) Project investigations	3,664,808	3,558,051	3,203,621
(*d*) General engineering and research:			
(1) Planning studies	111,429	119,170	108,000
(2) Engineering methods and materials research			250,000
2. Investigations of existing projects	4,544	40,512	29,000
3. Alaskan investigations	248,205	247,301	250,000
4. Fish and wildlife studies		195,000	200,000
5. Adjustment in cost: Prior year balance of advances to chief engineer, Denver, Colo., and centralized project activities in the regional offices	76,868	101,878	
Total program costs	5,182,097	5,100,128	4,793,298
6. Relation of costs to obligations: Costs financed from obligations of other years, net (−)	−143,194	−58,179	−39,311
Total program (obligations)	5,038,903	5,041,949	4,753,987
Financing:			
Comparative transfers to other accounts	360,659	164,142	
Unobligated balance brought forward	−1,136,673	−379,712	−12,435
Advanced from reclamation trust funds	−86,601	−169,822	−103,987
Unobligated balance carried forward	379,712	12,435	12,435
New obligational authority	4,556,000	4,668,992	4,650,000
New obligational authority:			
Reclamation fund, special fund	3,831,000	3,742,742	3,450,000
Colorado River development fund	500,000	500,000	500,000
General fund	225,000	426,250	700,000
Appropriation	4,556,000	4,668,992	4,650,000

Object classification

	1959 actual	1960 estimate	1961 estimate
BUREAU OF RECLAMATION			
Total number of permanent positions	710	622	599
Full-time equivalent of all other positions	30	20	16
Average number of all employees	601	574	537
Number of employees at end of year	607	563	550
Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
Average salary of ungraded positions	$5,228	$5,412	$5,481
01 Personal services:			
Permanent positions	$3,705,609	$3,675,460	$3,510,479
Positions other than permanent	121,677	109,707	66,231
Other personal services	59,766	69,615	57,427
Total personal services	3,887,052	3,854,782	3,634,137
02 Travel	202,455	196,197	178,670
03 Transportation of things	15,739	13,331	21,353
04 Communication services	38,519	39,169	37,215
05 Rents and utility services	19,477	13,122	10,385
06 Printing and reproduction	41,644	49,480	56,735
07 Other contractual services	42,819	22,414	33,759
Services performed by other agencies	440,925	285,621	224,291
08 Supplies and materials	101,324	90,657	83,179
09 Equipment	35,824	37,105	38,461
11 Grants, subsidies, and contributions	232,118	238,518	230,984
13 Refunds, awards, and indemnities	8,384	3,549	2,335
15 Taxes and assessments	2,623	3,004	2,483
Total, Bureau of Reclamation	5,038,903	4,846,949	4,553,987
ALLOCATION TO FISH AND WILDLIFE SERVICE			
Total number of permanent positions		25	26
Full-time equivalent of all other positions		1	1
Average number of all employees		26	27
Number of employees at end of year		25	26
Average GS grade and salary		7.9 $6,065	7.9 $6,088
01 Personal services:			
Permanent positions		$138,680	$145,000
Positions other than permanent		5,240	3,500
Other personal services		2,080	1,600
Total personal services		146,000	150,100
02 Travel		19,000	19,000
03 Transportation of things		200	150
04 Communication services		1,500	1,750
05 Rents and utility services		500	500
06 Printing and reproduction		750	700
07 Other contractual services		8,520	9,355
08 Supplies and materials		7,000	7,000
09 Equipment		2,500	2,000
11 Grants, subsidies, and contributions		9,000	9,425
15 Taxes and assessments		30	20
Total, Fish and Wildlife Service		195,000	200,000
Total obligations	$5,038,903	5,041,949	4,753,987

Mr. CANNON. We will insert in the record at this point pages BR–1 through BR–64 of the justifications.

(The pages referred to follow:)

GENERAL INVESTIGATIONS

Summarized financial data

Fiscal year 1960:	
Appropriation, fiscal year 1960	$4,668,992
Prior year balance available	[1] 277,834
Balance available in subsequent years	−12,435
Contributions	186,330
Total obligations, fiscal year 1960	5,120,721
Fiscal year 1961:	
Estimate of appropriations, fiscal year 1961	4,650,000
Prior year balance available	12,435
Balance available in subsequent years	−12,435
Contributions	103,987
Total obligations, fiscal year 1961	4,753,987

[1] Does not include prior year balances of advances to Assistant Commissioner and Chief Engineer's Office, Denver, Colo., and centralized project activities in regional offices.

JUSTIFICATION

The appropriation for general investigations provides for the planning of the basin and project developments of the Bureau of Reclamation for the utilization of the water resources of the 17 Western States, except in the Missouri River Basin where investigations of potential developments have been made with construction and rehabilitation allotments. This fund also provides for investigations in Alaska and Hawaii.

In the past, the Bureau of Reclamation program of general investigations has included:

(1) Engineering and economic investigations to determine the feasibility of potential reclamation projects:

(2) Advance planning to prepare newly authorized projects for construction:

(3) Investigations of existing projects necessary for rehabilitation, financial adjustments, or water conservation; and

(4) Investigations in Alaska relating to development of water resources.

Beginning in fiscal year 1961 the advance planning on authorized projects awaiting appropriation of funds for start of construction will be financed from the construction and rehabilitation appropriation.

The general investigations program includes allowances for necessary transfers of funds for reimbursements to other agencies, such as the Geological Survey, National Park Service, Weather Bureau, Coast and Geodetic Survey, Department of Agriculture, etc., for work over and above their regular programs which those agencies perform in connection with the Bureau's program because they are better equipped to do that specialized work. These amounts are included in the programs for the individual items. In the past, the transfers to the Fish and Wildlife Service were handled in a similar manner. The appropriation for the general investigation activity provided by the 1960 Public Works Appropriation Act, however, includes a specific amount for transfer to that agency for river basin studies and studies relating to the Bureau's projects under investigation, authorized and awaiting construction funds, or under construction. The funds for transfer to the Fish and Wildlife Service are therefore programed as a separate item beginning with this budget submission.

Work underway and proposed

The general investigations program for the current fiscal year is $5,120,721 which is financed with appropriated funds in the amount of $4,934,391 and contributions of $186,330. With these funds, planning activities will be underway on a total of 107 investigations, exclusive of stream gaging activities only. Of this total, 89 will be studies underway at the beginning of the fiscal year and 18 will be investigations being initiated or resumed. Thirty-seven of these investigations will be completed.

The estimated appropriation of $4,650,000 for general investigations for fiscal year 1961 includes $500,000 from the Colorado River Development Fund, for investigations in the Colorado River Basin as authorized by the Boulder Canyon

Adjustment Act of 1940, to be provided annually from the revenues of the Boulder Canyon project as a special fund for the development of projects in the Colorado River Basin; $700,000 from the general fund of the Treasury for the Alaskan investigation program ($250,000), the initiation of a nonreimbursable engineering methods and materials research program ($250,000), and transfer to the Fish and Wildlife Service ($200,000); and $3,450,000 from the reclamation fund.

The request of $4,650,000 for fiscal year 1961 plus contributions in the amount of $13,987 will be utilized for planning activities on a total of 89 investigations of which 70 will be continuations of prior year investigations and 19 will represent investigations initiated or resumed. Of the total, 26 will be completed in fiscal year 1961. The activity breakdown of work proposed in fiscal year 1961 compares with the program for fiscal year 1960 as shown in the following "Summary by Activities," and the details of the program proposed is presented in the accompanying tabulation entitled "Schedule of General Investigations Program, Fiscal Years 1960 and 1961."

Summary by activities

Activity	Estimated total	Total to June 30, 1959	Program, fiscal year 1960	Program, fiscal year 1961	Balance to complete
Engineering and economic investigations	$80,688,323	$30,934,903	$4,708,018	$4,367,447	$40,677,955
Advance planning	2,681,867	2,498,262	183,605		
Investigation of existing projects	262,108	168,493	40,492	39,000	14,123
Alaskan investigations	3,460,224	789,256	252,877	250,000	2,168,091
Subtotal Bureau of Reclamation	87,092,522	34,390,914	5,184,992	4,656,447	42,860,169
Transfer to Fish and Wildlife Service	4,395,000		195,000	200,000	4,000,000
Total, general investigations	91,487,522	34,390,914	5,379,992	4,856,447	46,860,169
Distributive charges for service facilities, unliquidated obligations, etc			−259,271	−102,460	
Total obligation program			5,120,721	4,753,987	
Less unobligated carryover and funds advanced			[1]−451,729	−103,987	
Appropriation or estimate			4,668,992	4,650,000	

[1] Does not include prior year balance of advances to Commissioner's Office, Denver, Colo., and centralized project activities in the regional offices.

Engineering and economic investigations—Detail by subactivity

Subactivity	Estimated total	Total to June 30, 1959	Program fiscal year 1960	Program fiscal year 1961	Balance to complete
Reconnaissance	$3,282,000	$250,761	$358,629	$448,987	$2,223,623
Basin surveys	12,849,668	9,105,014	491,181	290,920	2,962,553
Project investigations	60,640,947	20,130,872	3,739,038	3,274,540	33,496,497
General engineering and research:					
Planning studies	2,240,708	1,448,256	119,170	103,000	570,282
Engineering methods and materials research	1,675,000			250,000	1,425,000
Total	80,688,323	30,934,903	4,708,018	4,367,447	40,677,955

Reconnaissance

The program for fiscal year 1960 for this activity is $358,629. This program will provide for the continuation of reconnaissance survey work on seven potential projects to develop preliminary plans and ascertain the advisability of making more detailed feasibility studies and the initiation of reconnaissance studies on six additional projects. Of these, one study is to be completed.

Major items of work will be the continuation of the reconnaissance surveys of the Amador County Basins in California and the initiation of similar studies on the Lower Horse Heaven project in Washington, the Snake Plains recharge

project in Idaho and the Prairie Dog Town and Salt Forks of the Red River in Texas.

The fiscal year 1961 program will be $448,987. This will provide for further work on the 12 studies underway but not completed in the prior year and initiation of 5 additional studies. Of these, 8 will be completed.

The increase of the fiscal year 1961 program over the fiscal year 1960 program is primarily due to the initiation of reconnaissance investigations on three rather large potential developments, namely, the Eel River diversion unit of the Central Valley project in California; the Lower Colorado River water salvage project in Arizona, Nevada, and California; and the Oklahoma Basins project in Oklahoma.

This is a relatively small but very important segment of the general investigation program. Through these reconnaissance surveys it is possible to evaluate potential projects with a minimum of time and funds to determine whether more detailed investigations are warranted.

Basin surveys

The fiscal year 1960 program for this activity is $491,181, and the estimated program for fiscal year 1961 is $290,920. The fiscal year 1960 program will provide for continuation of comprehensive planning already underway in nine basins and the initiation of similar work in two other basins. In addition, the program will provide for the incurring of a small amount of cost against the Lahontan and Bonneville Basins to cover Federal representation on the water compact negotiations.

This will involve the continuation of comprehensive planning on the Columbia River, Central Valley, Lower Colorado River, Rio Grande, Upper Colorado River, and the Upper and Middle Snake Basins. Similar studies will be completed in the Kootenai, Lower Klamath, and Pecos River Basins and initiated on the Chehalis and Pend Oreille River Basins. In fiscal year 1961 work will be underway on eight basin surveys not completed in the prior year and a small amount of funds is programed for the Lahontan and Bonneville Basins. The decrease in the program for this activity is due to the completion of the three rather substantial basin surveys in fiscal year 1960.

These basin surveys are made to establish comprehensive plans for each basin to insure optimum development of the land and water resources. Completion of these overall plans for the major drainage basins in the West should be carried forward expeditiously to establish the framework for more detailed feasibility studies.

Project investigations

The fiscal year 1960 program for this activity is $3,739,038. This program will provide for the continuation of planning on 56 investigations underway at the beginning of the fiscal year, and the initiation or resumption of planning on 7 other studies. Of these, 23 will be completed by the end of the fiscal year.

The program for fiscal year 1961 is $3,274,540. The program will provide for the continuation of planning on 40 investigations underway at the beginning of the fiscal year and the initiation of planning on 4 other studies. Of these, 15 are to be completed at the end of the fiscal year.

The project investigation activity is the most important element in the entire general investigation program as it is these studies that culminate in final plans which serve as a basis for recommendations to Congress for authorization of water resources developments to meet the needs of the expanding population of the United States. That population is increasing now by approximately 3 million persons per year. The Department of Commerce median projection indicates a population of 370 million by 2010. Thus, in 50 years the population will about double. The growth of the West is proceeding even more rapidly than that of the country as a whole. Between 1950 and 1957 the population of the 17 reclamation States grew at the rate of 2.7 percent compounded each year—almost twice the rate of growth of the 31 Eastern States in the same period. It is estimated the population of that part of the Nation will have grown 50 percent—from 41 to 60 million people—by 1975. By 2010 the total population of this area will be 130 million if that growth trend continues. At the same time many thousands of acres of some of the best agricultural land in the Nation are being taken out of production each year for urban and industrial expansion, airports, highways, and other nonagricultural uses. Erosion, alkalinity, waterlogging, etc., also are impairing or taking out of production large blocks of land each year.

The rapidly increasing population of the Nation coupled with the taking of large blocks of land out of production each year will create a pressing demand for food and fiber to maintain even the current standard of living. This demand can be met only by shifts in agricultural cropping pattern to concentrate on the more productive crops, increasing the per acre production through improved farming practices and techniques, or by bringing additional land into cultivation. Studies indicate that the first two factors, concentrating on more productive crops and increasing the crop production per acre, will fall far short of meeting the requirements of this expanding population.

Along with this population growth there will no doubt be a continuation of the rapidly increasing demands of cities for a greater share of the limited water resources; in fact many cities are already feeling the effects of an inadequate water supply which is hindering further development. Studies by the Department of Commerce indicate that by 1975, the use of water for all purposes other than irrigation is expected to rise over 60 percent from the 1958 level of about 172 billion gallons per day to 280 billion gallons per day in 1975.

It is readily apparent that if the Nation's economy is to continue to grow as it has has in the past, careful conservation and utilization of the limited land and water resources will be essential and energetic efforts will be required to expand our agricultural production through all possible means including the development of additional irrigation projects. Because of the long-time lag between initiation of an investigation and the bringing of land into production it is essential that the planning work be carried forward at an effective rate now. If the Bureau, as the Federal agency primarily responsible for water conservation and utilization developments in the West, is to carry out its responsibilities in meeting this challenge of tomorrow, its planning program must be geared to long-range goals. It must be reviewed not from the standpoint of current needs and conditions, but in light of condiitons expected to prevail a few years in the future.

General engineering and research

Planning studies.—The fiscal year 1960 program for this activity is $119,170, and the estimate for fiscal year 1961 is $103,000. The easily developed reclamation projects have long since been completed, largely by private capital. The remaining projects generally represent large complex undertakings which require several years of intensive and careful planning to insure a successful development and the fullest use of the available water. In a number of the technical fields involved in water resources planning this requirement places a severe strain on the limited amount of basic technical data now available. This is particularly true in the fields of hydrology and sedimentation. The basic objective of this general engineering and research program, which is nonreimbursable, is the collection of basic data and the development of technical procedures and methods to assist in the hydrologic, economic and related engineering planning phases of a reclamation development. All of these studies are of a general nature and do not relate to specific projects. Private industry has long since recognized the necessity for sound research programs to develop new procedures and products. Quite similarly, this general engineering and research program should return substantial dividends in the form of savings in time and funds in the planning and construction of future projects.

Engineering methods and materials research.—The fiscal year 1961 appropriation request for the general investigation activity includes $250,000 for an engineering methods and materials research program. The objective of this research program is the investigation of new techniques and methods for construction of reclamation projects, including studies of new materials and products and their application to reclamation work, with the objective of bringing about savings in construction costs. In the past, the cost of this research program has been charged to projects under construction. The work, however, is of a general nature not identifiable with specific projects and the results are of benefit not only to those projects now under construction but those already in operation and those that will be developed in the future. Moreover, the results of these studies are made available to and are widely used by State and other Federal agencies, private organizations and other nations. In order to correct the inequity resulting from the charging of the cost of this research program to beneficiaries of projects currently under construction, $250,000 of nonreimbursable general investigation funds are requested for fiscal year 1961.

ADVANCE PLANNING

The fiscal year 1960 program for this activity is $183,065. Beginning in fiscal year 1961, however, this advance planning work will be financed from the construction and rehabilitation appropriation. A major portion of the fiscal year 1960 program will be utilized to continue the detailed preconstruction studies on the authorized initial phase of the Washoe project and the Trinidad project. The latter project is an authorized Corps of Engineers' project for which the Bureau has the responsibility of negotiating repayment arrangements for return of the costs allocated to irrigation. In addition, advance planning studies under the general investigations activity will be completed on the LaFeria division of the lower Rio Grande rehabilitation project utilizing funds contributed by the local interests, the Greater Wenatchee division of the Chief Joseph project, and the Canadian River project. Construction funds were appropriated for the Greater Wenatchee division for fiscal year 1960 but prior year general investigation funds programed for this project were utilized to continue the preconstruction studies until the construction allotments became available.

INVESTIGATIONS OF EXISTING PROJECTS

The program for fiscal year 1960 for this activity is $40,492. This program will provide for additional planning of three studies underway at the end of the prior year and the initiation of work on two additional studies. Of these, three will be completed by the end of the year.

The program of $39,000 for fiscal year 1961 will provide for further planning on the two studies underway but not completed in the prior year, and initiation of work on two additional studies. Of these, two will be completed.

Many of the structures on existing Bureau of Reclamation projects have been in operation for many years and have deteriorated to the point where the rehabilitation of the facilities as part of the normal operations and maintenance program is beyond the financial abilities of the water users. As part of this activity studies are being made to determine the need and justification for rehabilitation work on these older projects. This activity also provides for land reclassification studies required by terms of existing repayment contracts.

ALASKAN INVESTIGATIONS

During fiscal year 1960 this activity will be carried forward with a program of $252,877. This will be used to complete studies of the 450,000 kilowatt Devil Canyon project on the Susitna River which will serve the growing railbelt area and to continue an investigation of the 100,000 kilowatt Snettisham project which will serve the Juneau area where the key to mining and pulp manufacturing is the availability of a block of low-cost power. Limited cooperative studies will also be underway with the Alaska experiment station in connection with the Matanuska Valley project and a small amount of funds will be used for important stream gaging work to augment the sketchy streamflow data now available. The fiscal year 1961 program of $250,000 will be utilized to continue the Matanuska Valley and Snettisham project studies as well as the stream gaging work. It will also provide for the initiation of feasibility studies of the 200,000 kilowatt Chakachamna project located across Cook Inlet from the city of Anchorage and of the 260,000 kilowatt Vee project on Susitna River.

There are at the present time almost unlimited opportunities for low-cost hydroelectric power developments in Alaska. At the same time, Alaska's population has grown quite rapidly and with such population growth there are insufficient homes, schools, commercial establishments, public utility services, and service industries. Electric services are limited, and many dwellers in the suburban rural areas are unable to obtain electric service. Until substantial blocks of low-cost energy are made available, most of Alaska will suffer the inconvenience of relative curtailment in electric power supply. For the same reason, industrial expansion of Alaska is severely handicapped for need of electrical energy. It is important the investigations be continued, since they will contribute materially toward permanent settlement, encourage industrial development, and accelerate use and aid in the development of other Alaskan natural resources.

TRANSFERS TO FISH AND WILDLIFE SERVICE

Summarized financial data

Fiscal year 1960, appropriation	$195,000
Total obligations	195,000
Fiscal year 1961, estimate of appropriation	200,000
Total obligations	200,000

The program of $200,000 for this activity is needed to permit detailed studies by the U.S. Fish and Wildlife Service of Bureau of Reclamation projects in the United States, exclusive of the Missouri River Basin, as required by the Fish and Wildlife Coordination Act, as amended in 1958 (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) Projects in both the general investigations and the construction and rehabilitation programs of the Bureau of Reclamation will be studied with funds appropriated under this item.

Under the Fish and Wildlife Coordination Act, the Fish and Wildlife Service is required to determine the effects on fish and wildlife resources of water-control projects of the Bureau of Reclamation and other Federal and non-Federal agencies under Federal license and to recommend measures for the protection, development, and improvement of these resources. The act authorizes the transfer of funds for these studies to the Fish and Wildlife Service from moneys appropriated to the Bureau of Reclamation and other Federal construction agencies for investigations, engineering, or construction.

Funds requested herein will be used by the Service in conducting detailed studied of Bureau of Reclamation projects not yet authorized, authorized projects on which construction work has not yet begun, and projects under construction which are not substantially completed. In these studies, the Service determines whether the net effects of each project will be beneficial or adverse. If detrimental effects are anticipated, the Service report on the project recommends specific measures for preventing or reducing losses to these resources. On the basis of these studies, the Service report also recommends specific measures for the development and improvement of fish and wildlife as an integral part of the project plan. Mutually acceptable fish and wildlife measures are then included in the project plan by the Bureau of Reclamation and the costs of these measures are included as an integral part of project costs in accordance with the provisions of the Coordination Act.

Recommended conservation measures include minimum releases from reservoirs to preserve or improve downstream fisheries; minimum pools in reservoirs to maintain reservoir fisheries; protective screening to prevent fish from entering turbine intakes and diversion canals; fish passage facilities; fish hatcheries to maintain or improve fisheries; selective reservoir clearing to aid fish and wildlife use; creation of subimpoundments within reservoirs for fish and wildlife management; and the acquisition and development of additional lands as wildlife management or refuge areas to maintain or improve wildlife habitat in the project area. The Service also recommends where appropriate that certain public lands and waters acquired for project use and deemed suitable for wildlife management purposes, be made available to State or Federal conservation agencies, subject to agreements mutually acceptable to the Secretary of the Interior and the head of the appropriate State conservation department.

The $200,000 requested herein will enable the U.S. Fish and Wildlife Service to conduct detailed studies of approximately 33 Bureau of Reclamation projects during fiscal year 1961.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS							
RECONNAISSANCE							
Region 1:							
Lower Horse Heaven project	Washington	$99,000		$37,354	$61,646		Reconnaissance investigation initiated in fiscal year 1960 to determine if the project area of about 127,000 acres along the Columbia River in south-central Washington merits further study. Data are also needed to help determine the total resource development of the area contiguous to the McNary Dam project. Study to be completed in fiscal year 1961.
Snake Plain recharge project	Idaho	180,000		76,624	50,000	$53,376	Reconnaissance initiated during fiscal year 1960 to determine possibilities of diverting surplus flows of the Snake River onto the plains in south-central Idaho north of the Snake River for storage and to recharge underground supplies. The project would provide irrigation water, flood control benefits, and downstream stabilization of flows of the Snake River. Reconnaissance study will be completed in fiscal year 1962.
Teton Basin project	do	170,000	$59,314	9,779	31,544	69,363	Preliminary studies of the feasibility of providing storage capacity in the upper Teton Basin area in southwestern Idaho have been made. The purpose of this investigation is to extend those earlier studies to determine, to reconnaissance standards, the feasibility of utilizing that regulation for supplemental water for some 57,800 acres suffering from chronic water shortages as well as for flood control. In addition there are some 54,200 acres of new land in the upper basin that could use any additional water supply that can be developed.
Yakima project, Ahtanum Creek division.	Washington	35,600	8,848	13,690	13,062		Project located in Yakima County near city of Yakima, Wash. Reconnaissance investigation started in fiscal year 1959 to determine possibilities of providing critically needed supplemental water to the Ahtanum Irrigation District. A suit presently before the courts to obtain a greater share of the water of Ahtanum Creek for the Indian reservation may further intensify the shortage for the district. Initiation of feasibility studies will depend upon the outcome of the reconnaissance study which will be completed in fiscal year 1961.
Other projects, region 1		820,000	3,865			816,135	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 2:							
Other projects, region 2		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 3:							
Other projects, region 3		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 4:							
Other projects, region 4		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 5:							
Other projects, region 5		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 6:							
Other projects, region 6		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 7:							
Other projects, region 7		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 8:							
Other projects, region 8		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 9:							
Other projects, region 9		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 10:							
Other projects, region 10		1,000,000				1,000,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.

							ally needed supplemental water for the Orland Irrigation District. A suit presently before the courts to obtain a greater share of the water of Ahtanum Creek for the Indian reservation may further intensify the shortage for the district. Initiation of feasibility studies will depend upon the outcome of the reconnaissance study which will be completed in fiscal year 1961.
Other projects, region 1		820,000	3,865			816,135	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 2:							
Amador County basins	California	115,500	24,095	30,555	49,367	11,573	This reconnaissance study would determine methods of providing a firm water supply for several subbasins formed by the tributaries of the Cosumnes and Mokelumne Rivers in Amador County southeast of Sacramento. These subbasins are adaptable to orchards, vineyards, and pasture. A firm water supply is needed for both agricultural and domestic use. The curtailment of gold production and reduction in income from forest products make necessary the development of alternative opportunities. After providing for local requirements the basin development would provide water supplies for use in east side service areas. Reconnaissance report is to be completed in fiscal year 1962.
Central Valley project, Placerville Ridge unit.	do	18,000			18,000		The unit is located in the western portion of El Dorado County between South Fork of American River and North Fork Consumnes River. Study will involve reconnaissance appraisal of available water supplies and cost of delivery. Economy of area is now dependent upon lumbering, mining, service industries and limited agriculture. Area is adaptable to growing of deciduous fruits, irrigated pasture, and hay. Additional water would contribute to stabilizing the economy of the area. Local interests are to contribute one-half of the cost of the investigation.
North coast project, Eel River diversion unit.	do	125,000			20,000	105,000	The north coastal area of California, which embraces only 8 percent of the area of the State, contributes 36 percent of the water supply. The basin survey now approaching completion indicates a substantial part of this supply is surplus to inbasin need and is available for export. The upper Eel River, where an estimated 1,500,000 acre-feet is available for export, will be one of the principal sources of water for future development in California. Local interests are desirous of seeing that development is accomplished to benefit the economy of northwestern California as well as the needs of the rest of the State. This investigation will refine the basin survey data, determine the most desirable plan of development for the Eel River Basin, and establish the amount of water available for transbasin development. A report is to be completed in fiscal year 1961.
Other projects, region 2		335,000				335,000	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
RECONNAISSANCE—continued							
Region 3:							
Lower Colorado River Basin	Arizona, Nevada, New Mexico, and California.	$120,000	$61,132	$24,600	$28,868	$5,400	A reconnaissance report on alternate routes for delivery of water from Lake Mead to serve industrial, municipal, and homesite uses in the Eldorado Valley area, southwest of Boulder City, Nev., will be completed early in fiscal year 1960. The cooperative detailed soil survey and phretophite density study of Virgin River bottom lands in the Mesquite-Bunkerville areas extending from Lake Mead to the Arizona-Utah State boundary is also scheduled for completion in fiscal year 1960. Reconnaissance study will be completed in fiscal year 1961 of the potential Moapa Valley pumping project, Nevada, for supplying irrigation water to about 3,000 acres of irrigated land and a full water supply to about 6,000 acres situated in upper and lower Moapa Valleys and lower Meadow Valley, Wash., about 48 miles northeast of Las Vegas, Nev. to determine if it has sufficient merit to warrant undertaking project investigations. A reconnaissance study is scheduled to be started in fiscal year 1961 of the Panaca Valley project to determine the possibilities of providing supplemental water to about 2,000 acres of irrigated land and developing about 2,000 acres of new land in the vicinity of Panaca, Lincoln County, Nev.
Lower Colorado River, water salvage project.	Arizona, Nevada, and California.	115,000	----------	----------	32,000	83,000	This is a reconnaissance study of the feasibility of salvaging water for beneficial use by the eradication of phreatophytes or by other means in the bottom lands along the lower Colorado River between Davis Dam and the international boundary and determining methods of salvaging such water and putting it to a beneficial use. The opportunities for use of the water in the lower Colorado River Basin far exceeds the available supply. At the same time there are thousands of acres of land along the river covered with dense vegetation that is consuming large amounts of water. It is possible a substantial part of this water can be salvaged for beneficial use. Also, preliminary studies indicate there are some 90,000 acres of this land that would be suitable for agricultural use. In view of

							and the international boundary and determining methods of salvaging such water and putting it to a beneficial use. The opportunities for use of the water in the lower Colorado River Basin far exceeds the available supply. At the same time there are thousands of acres of land along the river covered with dense vegetation that is consuming large amounts of water.
							It is possible a substantial part of this water can be salvaged for beneficial use. Also, preliminary studies indicate there are some 90,000 acres of this land that would be suitable for agricultural use. In view of the importance of water to the future of the lower basin States this study should be completed as soon as possible.
Region 4:							
Fontenelle project	Wyoming	14,403	13,092	1,311			Located on Green River in southwestern Wyoming near town of Fontenelle. Reconnaissance of potential project of 3,200 acres to determine if project investigations are warranted and to assist State of Wyoming in selection of projects to use its allotted share of Colorado River water. The fiscal year 1960 program covers review of reconnaissance report completed in fiscal year 1959.
Juniper project	Colorado and Utah.	64,558	37,463	20,595	6,500		Reconnaissance to appraise the possibility of a development on the Yampa River in northwestern Colorado and northeastern Utah for power generation and irrigation utilizing storage at the potential Juniper, Cross Mountain, and Lily Park Reservoir sites. Report to be completed in fiscal year 1961.
Other projects, region 4		390,000	1,624			388,376	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Region 5:							
Embudo Creek project	New Mexico	15,350		2,550	12,800		Located along Embudo Creek and its tributaries in northwestern New Mexico. Reconnaissance study of need for rehabilitation of an existing 7,500-acre irrigation system and supplementing the present inadequate water supply. Report to be completed in fiscal year 1961.
Goodland project	Oklahoma and Texas.	29,300		17,200	12,100		Reconnaissance study to evaluate the potentiality for irrigation development of some 15,000 acres downstream from the existing Denison Dam on the Red River in southeastern Oklahoma and northeastern Texas. Investigations made to date indicate that irrigation would increase agricultural production of the area and minimize crop losses presently suffered during periods of drought. Reconnaissance report to be completed in fiscal year 1961.
Mimbres closed basin	New Mexico	14,050	1,431	11,519	1,100		Located in Grand and Luna Counties in southwestern New Mexico. An inventory of the basin water resources and reconnaissance study of the potentialities for developing additional surface water supplies for supplemental irrigation and for industrial uses in nearby mining areas. The reconnaissance report is to be completed in fiscal year 1961.

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Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
RECONNAISSANCE—continued							
Region 5—Continued							
Mora project	New Mexico	$69,639	$37,239	$5,950	$6,100	$20,350	Project involves rehabilitation of community ditch systems serving some 18,000 acres along Mora River in northeastern New Mexico. A reconnaissance report was completed in fiscal year 1956 which indicated that additional hydrologic data would be needed to reach conclusive findings. As a result, a cooperative program sponsored by the Bureau, the Geological Survey, and the State of New Mexico for collection of basic hydrologic data required for development of a plan for fully utilizing available water and land resources of the basin was initiated. This is the only work underway at the present time. A reconnaissance report thereon is scheduled for completion in fiscal year 1964, after the necessary hydrologic data have been collected and analyzed.
Ojo Caliente project	do	15,400			14,300	1,100	Project consists of some 2,000 acres in Rio Arriba County in northwestern New Mexico. Reconnaissance study to develop plans for rehabilitating the existing irrigation system, providing storage, if necessary, and also providing more efficient use of the limited water supply. Programing of a feasibility study is dependent upon findings of the reconnaissance study. The reconnaissance report is to be completed in fiscal year 1962.
Oklahoma Basins project	Oklahoma	300,000			39,100	260,900	Reconnaissance study of opportunities for transfer of waters from water surplus areas in eastern Oklahoma to water deficient areas to the west and otherwise provide for optimum development of the State's water supplies. Funds programed for fiscal year 1961 would permit initiation of a general reconnaissance survey of the entire State to collect, coordinate and evaluate information concerning problems and needs associated with water resources. Report to be completed in fiscal year 1964.
Prairie Dog Town and Salt Forks of Red River project	Texas	165,000		88,050	50,300	26,650	Reconnaissance study to evaluate potentialities for developing new surface water supplies in project area. Water supply problems of the Prairie Dog Town and Salt Forks of Red River within the State of Texas are

							supplies. Funds programed for fiscal year 1961 would permit initiation of a general reconnaissance survey of the entire State to collect, coordinate and evaluate information concerning problems and needs associated with water resources. Report to be completed in fiscal year 1964.
Prairie Dog Town and Salt Forks of Red River project.	Texas	165,000		88,050	50,300	26,650	Reconnaissance study to evaluate potentialities for developing new surface water supplies in project area. Water supply problems of the Prairie Dog Town and Salt Forks of Red River within the State of Texas are acute in some areas, and difficulty is experienced in developing new supplies of acceptable quality. Funds programed for fiscal year 1960 will permit initiation of basinwide reconnaissances. The reconnaissance report is to be completed in fiscal year 1962. Public Law 86-167 signed Aug. 18, 1959, authorized and directed the Secretary of the Interior to make this investigation.
Tularosa closed basin	New Mexico	23,800	2,748	18,852	2,200		Basin is located primarily in Otero County in south-central New Mexico. This is a study of potentialities for further development of basin surface water resources to alleviate existing municipal and irrigation water shortages. High influx of people brought in by military installations, a long extended drought period, and streams with no regulation that deliver most of the runoff in the winter months require optimum development of limited basin water resources. The reconnaissance report is to be completed in fiscal year 1961.
Other projects, region 5		47,400				47,400	Reconnaissance investigations to be initiated or resumed after fiscal year 1961.
Subtotal, reconnaissance		3,282,000	250,761	358,629	448,987	2,223,623	
BASIN SURVEYS							
Region 1:							
Chehalis River Basin	Washington	121,000	2,210	65,028	42,500	11,262	The Chehalis River Basin which occupies some 2,170 square miles in Pacific, Lewis, Mason, Grays Harbor, Cowlitz, and Jefferson Counties, in southwestern Washington, is located in what is generally considered a high rainfall area but so little of that rainfall occurs during the late growing season that irrigation is essential to maximum agricultural production. The area is rapidly outgrowing present water supplies and plans need to be formulated for water storage which will provide for the needs of industry and agriculture. The purpose of this study is to prepare a basinwide report outlining tentative plans for the development of the basin. In addition to irrigation, all other facets of the basin resources will be considered in order to plan for most optimum development. The report will be completed in fiscal year 1962.
Columbia River Basin	Idaho, Wyoming, Utah, Washington, Oregon, Nevada, and Montana.	2,000,000	1,264,101	72,362	74,000	589,537	Funds are required for Columbia River Basin studies for comprehensive plans, particularly for power and flood control, for important Army and reclamation dams in operation, under construction, or authorized. The funds provide for participation in the coordination and planning and operation of the Columbia River, for participation in the International Joint Commission engineering studies, and for cooperative studies with States and other agencies.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
BASIN SURVEYS—continued							
Region 1—Continued							
Kootenai River Basin	Idaho and Montana.	$65,995	$35,370	$30,625	----------	----------	Basin is located in northern Idaho and northwestern Montana. Investigation in progress to determine the basin potential which will aid in formulating an overall comprehensive plan of development for the basin, and to fit the plans of the United States in with those of Canada in an international plan of development, studies for which are now underway. Report scheduled for completion in fiscal year 1960.
Pend Oreille River Basin	Idaho and Washington.	140,000	----------	49,457	$20,000	$70,543	The Pend Oreille River Basin, located in northern Idaho and northeastern Washington, embraces that part of the Clarks Fork River drainage area extending from Lake Pend Oreille to the junction of Clarks Fork and Columbia Rivers. It is over 100 miles long and, embracing some 3,400 square miles in the United States, includes an undetermined area of potentially irrigable land. The principal purpose of the study is to determine the potential of the basin which will aid in formulating an overall comprehensive plan of development and outline the main areas of arable lands that might be worthy of further study as future irrigation developments.
Umpqua River Basin	Oregon	83,000	64,593	4,092	1,700	12,615	Basin is located in Douglas County in west-central Oregon along west side of coastal range. A special report evaluating the basin potential was completed in fiscal year 1956. This report was presented to the people of the area in fiscal year 1957 in order that they might better determine the course of further specific investigations. Funds requested in fiscal year 1960 and 1961 will provide only for the continuance of the stream gaging program by the U.S. Geological Survey.
Upper and Middle Snake River Basin	Idaho, Oregon, and Wyoming.	1,066,700	973,023	98,677	15,000	----------	Investigation in progress. The purpose of this investigation is to evaluate the undeveloped land and water supply potential of the upper Snake River Basin upstream from and including the Powder River and arrive at a comprehensive multipurpose development plan. The amount and distribution of water supply available for irrigation of new lands and as a supplemental supply for the lands that are now inadequately irrigated will be covered. Domestic supplies, flood

Upper and Middle Snake River Basin.	Idaho, Oregon, and Wyoming.	1,066,700	953,023	98,677	15,000		Investigation in progress. The purpose of this investigation is to evaluate the undeveloped land and water supply potential of the upper Snake River Basin upstream from and including the Powder River and arrive at a comprehensive multipurpose development plan. The amount and distribution of water supply available for irrigation of new lands and as a supplemental supply for the lands that are now inadequately irrigated will be covered. Domestic supplies, flood control, power production, and other multipurpose uses and the integrated use of new facilities with reservoirs already in operation will be studied. The study will cover all tributary streams, including the streams on the north of the basin that disappear into the basalt flows of the Snake plain. Ground water reservoirs of the basin are another source of additional water supply to be considered. Use of land and water resources in the basin is already developed in large measure. Formulation of future development plans must be incorporated into a basinwide plan in order to assure that future expansion is orderly and makes full and reasonable use of the resources and serves multiple purposes involved. A basin report is scheduled for completion in fiscal year 1961.
Other basins, region 1		388,000	13,685			374,315	Basin surveys to be initiated or resumed after fiscal year 1961.
Region 2:							
Central Valley Basin	California	1,987,425	1,115,780	27,925	43,720	800,000	Investigation in progress of engineering, agricultural, and economic factors relating to S. Doc. 113, 81st Cong., 1st sess., entitled "Comprehensive Plan for Water Resource Development, Central Valley Basin, Calif." Coordinated reservoir operation studies are being made with the State and local groups to insure a coordinated approach to the water development problems and that economic studies are kept up to date. Funds are included for preliminary repayment studies for unauthorized, multiple purpose Corps of Engineers projects. Studies of salinity conditions in the delta areas of the lower Sacramento River will be continued.
Lahontan Basin	California and Nevada.	162,000	105,996	3,864	2,000	50,140	These funds are required to cover expenses incurred by the Federal representative on the California-Nevada Compact Commission.
Lower Klamath River and adjacent basins.	California	761,976	720,776	41,200			Encompasses entire northwestern part of California, bounded by Pacific Ocean on the west, California boundary on the north, Russian River on the south, and extending to Trinity River at Lewiston on the east. Investigation in progress to inventory the natural resources and prepare a plan for their orderly development in the north coastal area of California, which contributes approximately 36 percent of the water supply of the State of California. A report is scheduled for publication in fiscal year 1960.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
BASIN SURVEYS—continued							
Region 2—Continued							
Santa Ynez River Basin		$90,187	$80,649	$2,971	$3,000	$3,567	Basin occupies southern Santa Barbara County in southern California. A report was completed in fiscal year 1956 but it was found that additional data were needed on the ground water potential. A cooperative study of consumptive use and rainfall penetration in the Santa Ynez River Basin, therefore, is being carried on with Geological Survey, Soil Conservation Service, Bureau of Reclamation, and Santa Barbara County Water Agency participating. The study is needed to develop data for ground water estimates.
Other basins, region 2		1,306,000	848,071			457,929	Basin surveys to be initiated or resumed after fiscal year 1961.
Region 3:							
Lower Colorado River Basin, general.	Arizona, California, New Mexico, Nevada, and Utah.	1,150,000	898,297	66,780	65,000	119,923	Investigations are in progress on comprehensive water supply studies of the Lower Colorado River Basin, including a cooperative program with the Geological Survey for collecting, analyzing, and publishing streamflow data, sediment, and quality of water data relating to the basin for use as a basis for future planning and examining issues in the controversy over Colorado River water. This program also includes the collecting of data and the preparation of a supplemental report to the Report on Water Supply of the Lower Colorado River Basin Lake Mead density current surveys, and general items covering basinwide matters.
Region 4:							
Bonneville Basin	Idaho, Utah, and Wyoming.	520,000	467,577	1,957	1,000	49,466	These funds are required to cover expenses incurred by the Federal representative on the Bear River Compact Commission.
Upper Colorado River Basin	Colorado, New Mexico, Utah, Arizona, and Wyoming.	1,725,000	1,396,166	7,828	8,000	343,006	These funds are required for studies of a general nature not applicable to a specific project such as consumptive use, sedimentation, and evaporation, and to cover expenses incurred by the Federal representative on the Upper Colorado River Commission.
Region 5:							
Pecos River Basin	New Mexico and Texas.	557,769	550,104	7,665			Regional director's proposed report has been completed on a plan of additional development of the basin, pre-

Region 4:							
Bonneville Basin	Idaho, Utah, and Wyoming.	520,000	467,577	1,907			Commission.
Upper Colorado River Basin	Colorado, New Mexico, Utah, Arizona, and Wyoming.	1,725,000	1,366,166	7,828	8,000	343,006	These funds are required for studies of a general nature not applicable to a specific project such as consumptive use, sedimentation, and evaporation, and to cover expenses incurred by the Federal representative on the Upper Colorado River Commission.
Region 5:							
Pecos River Basin	New Mexico and Texas.	557,769	550,104	7,665			Regional director's proposed report has been completed on a plan of additional development of the basin, presenting an inventory of the basin water resources and recommendations for development of additional surface water supplies by rehabilitation, water salvage measures, and regulation, to meet increasing water demands for irrigation, municipal and industrial purposes. Regional director's report will be completed in fiscal year 1960.
Rio Grande Basin	Colorado and New Mexico.	695,616	618,616	10,750	11,000	55,250	These funds provide for continuation of liaison and cooperation with other agencies on the complicated and serious problems affecting Bureau actions in the Rio Grande Basin.
Miscellaneous services: Print basin reports.		29,000			4,000	25,000	Funds are required for printing of basin reports. Such costs are chargeable to specific basins but are not scheduled with the basin survey costs since it is impossible to predict just when or what reports will be cleared in the review by States, Federal agencies, and the Congress for printing.
Subtotal, basin survey		12,849,668	9,105,014	491,181	290,920	2,962,553	
PROJECT INVESTIGATIONS							
Region 1:							
Baker project, upper division	Oregon	293,000	290,926	2,074			Project is located along Powder River near town of Baker in northeastern Oregon. This is an investigation of the feasibility of providing a water supply for 4,010 acres of new land and 13,990 acres of land in need of a supplemental supply. All fieldwork has been completed and the funds for fiscal year 1960 will provide for review and processing of the final report.
Blackfoot River project	Montana	134,000	18,756	83,587	31,657		Project consists of Ninemile and McNamara Dams and Reservoirs on Blackfoot River a short distance above its confluence with the Clarks Fork River. A feasibility report providing a plan for the development of a multipurpose dam and reservoir at the Ninemile site on the Blackfoot River was completed in fiscal year 1959. The powerplant would have an installed capacity of about 60,000 kilowatts and the reservoir would provide important upstream storage of about 1,000,000 acre-feet. Also, during fiscal year 1959 a study was started on the McNamara Dam and powerplant which will provide reregulating facilities for the Ninemile Prairie Dam, powerplant, and reservoir. This structure, operated in conjunction with Ninemile Prairie Dam, would regulate storage flows to the advantage of other downstream sites. It would also provide about 22,000 kilowatts of at-site power which would help alleviate power shortages in the Pacific Northwest. A report on this phase of the project is to be completed in fiscal year 1961.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 1—Continued							
Challis project, Challis Creek division.	Idaho	[$109,000	$21,054	----------	$13,000	$74,946	Located on Challis Creek, a tributary of the Salmon River in Custer County, Idaho. A reconnaissance report was completed in June 1958. An investigation to feasibility standards is to be started in fiscal year 1961 to provide late-season supplemental water to 2,000 acres in the project area which, under present conditions, suffers shortages in all but exceptional years and a full supply for 200 acres of new land. This development would provide needed stabilization and expansion of the basic economy of the area. Local interest in the development of storage on Challis Creek is very widespread and sincere, both among farm operators and the community of Challis as well.
Chief Joseph Dam project	Washington	325,000	215,409	$63,990	45,601	----------	Project is located in north-central Washington in the vicinity of the Corps of Engineers Chief Joseph Dam on the Columbia River. Public Law 577 passed in 1952 reauthorized the Chief Joseph Dam project to include irrigation among its multiple purposes. Several areas in the vicinity of the dams have an irrigation potential that should be studied. A reconnaissance report on the St. Andrews-Sagebrush Flats area and feasibility reports for the Greater Wenatchee division, the Oroville-Tonasket unit of the Okanogan-Similkameen division, and the Alameda unit of the shoreline pumping division have been completed. A reconnaissance investigation of the Methow division which involves providing an adequate water supply for some 13,000 acres is now underway. Also underway are feasibility investigations of the Chelan division, which will provide a full water supply for 2,000 acres of new land and a supplemental supply for 3,800 acres and the Whitestone Coulee unit of the Okanogan-Similkameen division involving some 1,900 acres of land needing additional water. All of these studies will be completed in fiscal year 1961.
Cottage Grove project	Oregon	96,775	63,931	32,844	----------	----------	This is an investigation of a plan to provide irrigation water for some 8,700 acres in the Willamette Basin near the town of Cottage Grove, Oreg. It now appears, however, there is not sufficient interest in irrigation in this area to justify proceeding with the study at this time. The funds for fiscal year 1960 will be used to pre-

							mental supply for 3,800 acres and the Wilkeson Coulee unit of the Okanogan-Similkameen division involving some 1,900 acres of land needing additional water. All of these studies will be completed in fiscal year 1961.
Cottage Grove project	Oregon	96,775	63,931	32,844			This is an investigation of a plan to provide irrigation water for some 8,700 acres in the Willamette Basin near the town of Cottage Grove, Oreg. It now appears, however, there is not sufficient interest in irrigation in this area to justify proceeding with the study at this time. The funds for fiscal year 1960 will be used to prepare a "wrap-up" report for future use.
Crooked River project extension	do	190,000	61,392	34,010	52,000	42,598	This project is located in the Deschutes and Crooked River Basins in central Oregon. Investigation started in fiscal year 1959 to develop plans for the most beneficial use of the unassigned water (51,200 acre-feet) in Prineville Reservoir which will be in excess of the needs of the Crooked River project now under construction. Determination of the use of this unassigned water would achieve maximum agricultural development in the area and would also tie construction costs associated with the unassigned space to repayment contracts as soon as possible. A feasibility study of some 2,890 acres of land just above the main canal of the Crooked River project was underway in fiscal year 1959 and the regional director's report will be prepared in fiscal year 1960. Studies of a reconnaissance nature were also started in fiscal year 1959 to delineate other areas which could benefit from the unassigned space. This reconnaissance report is scheduled for completion in fiscal year 1960. Upon selection of a feasible plan, further studies will be made to utilize remaining unassigned space.
Eureka Flats project	Washington	182,000	34,583	39,115	57,000	51,302	Located along north side of Columbia River in Walla Walla County in southeastern Washington. Investigation started in fiscal year 1960 to provide a plan of development for some 12,600 acres of new land now used for grazing. Water would be obtained by pumping from the pool behind Ice Harbor Dam, an authorized Corps of Engineers project on the lower Snake River. A reconnaissance report, completed in fiscal year 1957, indicates that a feasibility study is justified.
Flathead River project	Montana	211,826	202,852	8,974			Investigation is in progress of a multiple-purpose project in Flathead County in northwestern Montana which involves diversion of the Middle Fork to the South Fork of the Flathead River behind existing Hungry Horse Dam. A reconnaissance study was made during fiscal year 1957 and a report prepared. Feasibility studies were started in fiscal year 1958 on the various plans outlined in the reconnaissance report to determine the most feasible plan. This project would provide upstream storage, at-site power production of some 88,000 kilowatts and downstream flood control benefits. Report is scheduled for completion in fiscal year 1960.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 1—Continued							
Main Weiser project	Idaho	$290,000		$52,582	$69,861	$167,557	Investigation to develop a plan to provide additional control of the surface waters of the Weiser River Basin in southeastern Idaho for the principal purposes of irrigation and flood control was started in fiscal year 1960. Water users in many parts of the basin experience limited production because of lack of late-season irrigation water. In 1955 and again in 1957 severe floods were experienced which caused extensive damage to farmlands and public and private improvements. A feasibility report is to be completed in fiscal year 1964.
Monmouth-Dallas project	Oregon	140,000	$43,273	64,606	28,000	4,121	Located in Willamette Valley in northwestern Oregon near towns of Monmouth and Dallas. A reconnaissance appraisal of the project was made in fiscal year 1955. Feasibility studies were started in fiscal year 1959 to provide a plan to furnish irrigation water to some 12,000 acres of land and municipal water supplies which are deficient under present conditions. There is very strong local interest in and desire for the project. A feasibility study is scheduled to be completed in fiscal year 1962.
Post project	do	127,447	102,403	25,044			Studies now underway of a plan for the development of some 8,300 acres of land in Crooked River Basin (Post County) in central Oregon. An adequate water supply would permit growing of alfalfa and hay crops which would be used for winter feeding in an area where the farm economy is based on the production of beef cattle. Studies to date indicate, however, that under present conditions the project is not economically feasible and the study is being terminated and a "wrap-up" report prepared.
Rathdrum Prairie project, Prairie division, East Greenacres unit.	Idaho	65,000	27,201	34,527	3,272		The East Greenacres Irrigation District system, which serves some 1,500 acres located along Idaho-Washington boundary east of Spokane, Wash., is in need of rehabilitation, and the main canal which brings water from Twin Lakes wastes considerable water en route. The purpose of this investigation is to develop plans for and test the economic feasibility of rehabilitating the system and expanding the project to include an additional 1,000 acres. There is very strong local support by members of the irrigation district who desire a system similar to that recently built by the Bureau for the neighboring districts (Avondale, Dalton Gardens, and

							boundary east of Spokane, Wash., is in need of rehabilitation, and the main canal which brings water from Twin Lakes wastes considerable water en route. The purpose of this investigation is to develop plans for and test the economic feasibility of rehabilitating the system and expanding the project to include an additional 1,000 acres. There is very strong local support by members of the irrigation district who desire a system similar to that recently built by the Bureau for the neighboring districts (Avondale, Dalton Gardens, and Hayden Lake). A feasibility report is scheduled for completion in fiscal year 1961.
Red Prairie project	Oregon	261,600	31,590		60,000	170,010	Located in Willamette Basin in northwestern Oregon near town of Sheridan. Reconnaissance report was completed in fiscal year 1959. Feasibility studies should be started in fiscal year 1961 to provide a plan for the development of some 10,000 acres. Agricultural production on lands of the Red Prairie is seriously curtailed because of deficient precipitation during the critical growing season. Production is limited and diversification impossible under present conditions. There is strong local interest and support for the development of the project.
Rogue River Basin project	do	549,000	238,978	34,005	70,578	205,439	Project encompasses the Rogue River Basin in southwestern Oregon. A basin report was completed in 1950 but because other agencies had not completed their analysis, it was used only as a reference for subsequent studies. Feasibility studies have been completed for the Talent division (now under construction), the Merlin division and the Agate Dam and Reservoir. Work on Illinois Valley division was suspended in fiscal year 1956 and a preliminary report prepared on a plan for the development of 16,660 acres of new land. This report was submitted to the landowners recommending among other things that before further studies were made, an irrigation district be formed and assurance made that land would be cleared. These requirements have been accomplished and an updating and revision of the first report is scheduled for fiscal year 1961. Feasibility studies of the Evans Valley division were started in fiscal year 1959 to provide a plan for the development of about 4,000 acres of land of which 1,000 acres are now inadequately irrigated. Previous basin studies indicate a feasible development by providing storage facilities in the upper reaches of Evans Creek. Studies of the Applegate Valley division are scheduled to start in fiscal year 1962.
Salmon Falls project	Idaho	656,000	70,553	108,544	240,000	236,903	Project is located in south-central Idaho. The purpose of the investigation is to develop plans for diverting water from the Snake River at Milner Dam to provide critically needed supplemental irrigation water for about 32,000 acres of inadequately irrigated land, all that remains of an original project area of 150,000 acres, and a full water supply for 62,000 acres of dry land. A reconnaissance report was completed in fiscal year 1959 and feasibility studies leading to a report in fiscal year 1964 are now underway.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 1—Continued							
Snake Narrows project	Idaho and Wyoming.	$191,908	$185,895	$6,013			Project consists of a multipurpose dam and reservoir on the Snake River above the existing Palisades Reservoir. Reservoir will provide holdover storage capacity for irrigation, flood control and production of 270,000 kilowatts of power. Report is scheduled to be completed in fiscal year 1960. Storage space in the existing Palisades Reservoir has been oversubscribed and present and anticipated power requirements exceed the capacity of the existing facilities.
Snake River project, Garden Valley and Mountain Home divisions.	Idaho	1,310,000	889,880	19,189	$7,000	$393,931	These divisions are located in southwestern Idaho in the general vicinity of the city of Boise. Investigations of the Mountain Home division were initiated late in fiscal year 1953 to determine feasibility of using ground water in exchange for Boise River water for the Mountain Home division. A report on the Hillcrest unit, an initial phase of this development, was completed in fiscal year 1954 and a report on the overall plan was completed in fiscal year 1955. Studies of an alternate proposal involving a dam on the Snake River at the Guffey site were initiated in fiscal year 1955, culminating in a reconnaissance-type report early in fiscal year 1956. Feasibility studies of this development have continued on a plan to provide an adequate irrigation supply to some 119,140 acres of land, including 12,460 acres for which a supplemental irrigation supply will be furnished, and for the generation of 140,000 kilowatts of electrical energy. Irrigation water would be supplied from the Snake River, Boise River, and ground water. A feasibility report is scheduled for completion in fiscal year 1960. In fiscal year 1958 a feasibility study of the Garden Valley division was started. This multiple-purpose project would provide 2,400,000 acre-feet of upstream storage, ultimate production of 368,500 kilowatts of power, and irrigation water which could be used for possible expansion of the irrigation system of the Payette division of the Boise project. A report was completed in fiscal year 1959. In fiscal year 1961 studies will be initiated on expansion of the Payette division and adjacent areas which could utilize the conservation storage capacity of the Garden Valley division.
The Dalles project, western divi-	Oregon						

							upstream storage, ultimate production of 368,500 kilowatts of power, and irrigation water which could be used for possible expansion of the irrigation system of
							the Payette division of the Boise project. A report was completed in fiscal year 1959. In fiscal year 1961 studies will be initiated on expansion of the Payette division and adjacent areas which could utilize the conservation storage capacity of the Garden Valley division.
The Dalles project, western division.	Oregon	171,500	168,410	3,090			Located along south bank of Columbia River near the city of The Dalles. A report was completed in 1947 and was one of the recommended projects in H. Doc. 473, 81st Cong., 2d sess., "The Columbia River." The project area is devoted primarily to cherry orchards and the gradual exhaustion of the ground water and below normal precipitation in recent years have curtailed crop production. In addition, the orchards have suffered critical frost damage because of the weakened conditions of the trees as a result of lack of water. An investigation of the project was started in fiscal year 1958 to revise and bring up to date the previous report to provide a plan for an adequate irrigation supply to some 5,420 acres of land. The fiscal year 1960 funds provide for completion of the final report.
Tualatin project	do	242,000	197,660	16,340	28,000		Project is located in Tualatin River Basin southwest of Portland, Oreg. A proposed report based on an irrigation development of some 31,000 acres was completed in fiscal year 1957 and submitted to the local interests. Preparation of final report was deferred pending decision by landowners regarding formation of an irrigation district and willingness to support the project. A recent canvass by the local interests revealed that the owners of a substantial part of the land in the project area are interested in receiving irrigation service. In addition, urban expansion within the project area has continued at an accelerated rate and several communities have found municipal and industrial water supplies are becoming critical. 3 of these municipalities have advanced a total of $15,000 toward the cost of a reanalysis of the project plan to incorporate their requirements. The funds for fiscal year 1960 will provide for resumption of the study with the objective of completing the final report in fiscal year 1961.
Umatilla project, south division, Birch Creek diversion unit.	do	38,000			10,000	28,000	Located in northeastern Oregon near city of Pendleton. Study should be started in fiscal year 1961 to provide needed supplemental water for the south division by diversion of additional water from Birch Creek to McKay Reservoir, an existing facility not before utilized to full capacity. This diversion was planned when the McKay Reservoir was constructed, but no work was done on the diversion canal. Because of continuing pressure for expansion of irrigated agriculture in Umatilla County, with the main need being for supplemental irrigation water, studies of the feasibility of this proposal should be completed as soon as possible.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 1—Continued							
Umpqua River project	Oregon	$586,000	$76,297	$66,826	$84,000	$340,877	Located in Douglas County in west-central Oregon on western slope of Cascade Mountains. A special report evaluating the potential of the Umpqua River Basin was completed in fiscal year 1956. This report was presented to the people of the area during fiscal year 1957 and several areas were selected for more detailed study. In fiscal year 1960 feasibility investigations will be continued on the plan to provide a full water supply for 12,430 acres and a supplemental water supply for 470 acres of the Olalla division on which a favorable reconnaissance report was completed in fiscal year 1959. In addition, a reconnaissance investigation will be completed on the 12,300-acre Roseburg division and initiated on the 20,000-acre Oakland division. The fiscal year 1961 program will provide for the continuation of the investigation of the Olalla division leading to a report in fiscal year 1962, completion of the reconnaissance report on the Oakland division, and initiation of feasibility studies on the Roseburg division. Areas of the divisions selected for study are faced with threats of floods during each winter season and extremely low natural flow during the summer season when water supplies are not sufficient to irrigate all lands covered by water rights. Provision for storage of winter flood flows would not only provide flood control benefits but would provide the basis for an expanded economy through the means of irrigation.
Upper Owyhee project	do	136,000	133,301	2,699			Investigation in progress to provide a plan for critically needed additional storage on the upper Owyhee River in southeastern Oregon to supplement existing water supply of the Owyhee project and to explore possibilities of providing supplemental water to inadequately irrigated areas in the upper Owyhee Basin. A proposed report has been prepared and the funds requested in fiscal year 1960 will provide for completion of the investigation.
Walla Walla project	Washington and Oregon	574,000	334,117		45,000	194,883	Investigation scheduled to be started in fiscal year 1961 to provide an overall plan for the full development of the irrigation potential in the Walla Walla River Basin

							in southeastern Oregon to supplement existing water supply of the Owyhee project and to explore possibilities of providing supplemental water to inadequately irrigated areas in the upper Owyhee Basin. A proposed report has been prepared and the funds
Walla Walla project	Washington and Oregon.	574,000	334,117		45,000	194,883	requested in fiscal year 1960 will provide for completion of the investigation. Investigation scheduled to be started in fiscal year 1961 to provide an overall plan for the full development of the irrigation potential in the Walla Walla River Basin located in north-central Oregon and south-central Washington near the city of Walla Walla, Wash. At the present time there are some 30,000 acres of land being irrigated in this basin but water shortages are becoming critical throughout the area and the ground water table is receding at an alarming rate. As a result, there is strong local support for a water conservation development. The Bureau has completed reports on 2 of the principal areas involved, namely, the Dayton and Milton-Freewater areas, and has made some studies of possible storage sites on Walla Walla River. However, all single and inexpensive water diversions have been made, and it is essential that a coordinated study be made to insure maximum beneficial use of the limited water supply.
Yakima project, Kennewick division extension,	Washington	48,000	42,638	5,362			Located in south-central Washington just above confluence of Yakima and Columbia Rivers. Investigation started in fiscal year 1957 to provide a plan to furnish an adequate water supply to some 6,300 acres of dry land which was deferred from the area of the Kennewick division on which construction is approaching completion. The large population growth of the area and the need for additional land make it advisable to provide a plan for this development. The proposed report on this investigation was completed in fiscal year 1959, and fiscal year 1960 funds will be used to prepare the final report.
Investigations on which streamgaging is only work scheduled during fiscal year 1960 through fiscal year 1965.		902,000	131,381	7,334	14,590	748,695	These funds provide for continuation of streamgaging by the Geological Survey in connection with projects on which no other work will be underway during that particular year. During fiscal year 1961 this will involve the following projects: Birch Creek project, Idaho; Bruneau project, Wickahoney division, Idaho; Butter Creek project, Oregon; Dayton project, Washington; Flathead River project, Montana; Kootenai River Basin, Idaho-Mont.; Lemhi Valley project, Idaho; Raft River project, Idaho; Guffey unit, Mountain Home division, Snake River project, Idaho; Upper and Middle Snake River Basin, Idaho-Wyo.-Oreg.; and Yamhill project, Oregon.
Other projects, region 1		4,366,000	117,274			4,248,726	Investigations scheduled to be initiated or resumed after fiscal year 1961.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 2:							
Calleguas project	California	$395,000	$370,457	$14,569	$9,974		This investigation establishes the means of providing an interim water supply to an area of about 31,000 acres in Ventura County in southern California which has already experienced the return of some irrigated lands producing citrus fruits, avocados, and walnuts, to dry-land farming because of failing ground water supplies. Local interests are contributing 50 percent of the cost of the investigation. The water rights for the project are under litigation at the present time and the funds for fiscal year 1960 and fiscal year 1961 are for cooperation with the local interests in resolving this problem and for preparing a report.
Central Valley project:							
American River division, Auburn and Folsom south units.	do	697,961	661,961	36,000			These investigations will determine the feasibility of providing irrigation service for some 363,000 irrigable acres of land in Sacramento and San Joaquin Counties which would be served from American River. Auburn unit consists of Auburn Dam, Reservoir, and powerplant on American River above the existing Folsom Reservoir and the Folsom south unit consists of the main conveyance system to deliver the water from the American River to the service area. A supplemental water supply is necessary to maintain and improve an established agriculture based on ground water pumping and to protect municipal and industrial water supplies required by an expanding population. Livestock production, the raising and processing of fruit, grapes, tomatoes, sugar beets, corn, and other truck and field crops provide the principal components of the agricultural economy. The final reports will be prepared and processed in fiscal year 1960.
Cosumnes River division, Nashville unit.	do	371,000	169,200	66,064	50,069	85,577	Investigation of the engineering and economic feasibility of providing multipurpose storage on the Cosumnes River south of Sacramento, Calif., to conserve the unused water resources of Cosumnes River for irrigation, municipal, and industrial uses, for hydroelectric power development, flood control, and fishery enhancement. A feasibility report is scheduled for completion in fiscal year 1962.

Cosumnes River division, Nashville unit.	do	371,000	169,200	96,064	50,069	85,577	Investigation of the engineering and economic feasibility of providing multipurpose storage on the Cosumnes River south of Sacramento, Calif., to conserve the unused water resources of Cosumnes River for irrigation, municipal, and industrial uses, for hydroelectric power development, flood control, and fishery enhancement. A feasibility report is scheduled for completion in fiscal year 1963.
East side division (initial phase).		[1] 1,781,423	643,610	471,556	566,257	[1] 100,000	This investigation is designed to assist in solving the overdraft on ground water supplies in San Joaquin Valley and the need for replacement of lands in specialty crops being lost to urbanization. Although the Central Valley project imported supplies have materially assisted in preserving the area's agricultural economy, the overdraft continues. Further planning is needed to insure continued economic stabilization. Urbanization of lands previously devoted to citrus groves, truck crops and forage crops in southern and central California areas is creating a demand for replacement acreage. The rapid increase in population is creating corresponding increases in demands for foodstuff, especially perishable fruits, vegetables, and dairy products which depend on forage products from nearby agricultural areas. This division will consist of multipurpose dams and reservoirs on the major tributaries and an extensive conveyance system to transport excess waters of the northern rivers such as the Yuba, American, etc., to the water deficient areas to the south. These latter areas embrace some 4,000,000 acres of land for which the supplemental water requirements are estimated to be about 2,000,000 acre-feet annually. The report on the initial phase will present the overall plan and contain reconnaissance data on the Yuba unit and related facilities of the ultimate phase. The following units constituting this division will be integrated into an overall plan and report.
Conveyance unit		(188,228)		(59,947)	(128,281)		The purpose of the investigation is to determine a feasible plan for transporting excess water supplies of the northern streams to water deficient service areas in the southern part of the east side of the San Joaquin Valley. The unit is the link between the storage units and the service units of the east side division. Funds will be used for completing cost estimates for conveyance and offstream storage facilities.
Storage units:							
New Melones unit		(238,286)	(33,946)	(78,009)	(126,331)		New Melones Dam and Reservoir, located on the Stanislaus River in Calaveras and Tuolumne Counties, have been authorized for construction by the Corps of Engineers. This investigation will develop plans for utilization of the conservation storage capacity in that reservoir for irrigation, particularly in relation to the Central Valley project and the east side division. Reconnaissance studies have been made of potential costs and accomplishments. Report material will be prepared for inclusion in east side division feasibility report.

[1] Estimate of $100,000 for formulation of overall plan and preparation of report is included in this total but is not itemized below.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 2—Continued							
Central Valley project—Continued							
Storage units—Continued							
Yuba unit		($154,650)	($61,035)	($53,615)	($39,000)		Studies to reconnaissance standards to determine a plan for multipurpose storage in Yuba River in Nevada and Yuba Counties north of Sacramento, Calif., for irrigation, municipal, and industrial water, flood control, and power. Yuba River is the 3d largest tributary of the Sacramento River and a large volume of water is now being wasted into the Pacific Ocean. In addition, the river periodically causes extensive flood damage. Development of the unit would make a major contribution toward meeting the needs of an expanding population.
Service units:							
East Sacramento Valley unit.		(43,886)		(28,886)	(15,000)		This unit consists of some 100,000 acres in Sacramento, Placer, Yuba, Sutter, and Nevada Counties which are in need of supplemental water. The purpose of this investigation is to determine local water requirements and best means of providing irrigation service to those lands and to determine surplus waters available for transport from Sacramento to San Joaquin Valley. Funds for fiscal year 1961 are required to complete study as part of east side Division investigation.
Fresno-Chowchilla unit		(202,082)	(174,817)	(27,265)			Study to explore means of coordinating operation of Buchanan Reservoir on Chowchilla River and Hidden Reservoir on Fresno River with water supply available from Millerton Lake through Madera Canal of the Central Valley project. All studies have been and are being coordinated with those of the Corps of Engineers.
Friant-Kern unit extension		(315,940)	(180,601)	(84,339)	(51,000)		Friant-Kern unit extends along canal from San Joaquin River to city of Bakersfield. Investigation to determine additional water needs and justification for serving those needs will be coordinated with other service area studies of east side Division. Study will determine facilities required to conserve and convey imported water as a further step in meeting the water problems of water deficiency in San Joaquin Valley.
Madera unit extension		(57,154)		(37,154)	(20,000)		Madera unit is located along foothills of Sierra Nevada

Friant-Kern unit extension		(315,940)	(180,701)	(84,339)	(51,009)	Friant-Kern unit extends along canal from San Joaquin River to city of Bakersfield. Investigation to determine additional water needs and justification for serving those needs will be coordinated with other service area studies of east side Division. Study will determine facilities required to conserve and convey imported water as a further step in meeting the water problems of water deficiency in San Joaquin Valley.
Madera unit extension		(57,154)		(27,154)	(30,000)	Madera unit is located along foothills of Sierra-Nevada Mountains extending some 37 miles north of San Joaquin River. Investigation to explore the possibility of utilizing water imported through proposed east side division conveyance system to provide supplemental water to areas of deficiency. Preliminary work on land use, water requirements, and ground water potential has been done. Funds for fiscal year 1961 are needed to continue studies on land use, economics, water supply, water requirements, and planning the distribution system.
Mendota-Kings unit		(356,009)	(186,677)	(74,687)	(94,645)	This study is to establish the most feasible method of making additional water available to portions of Fresno, Kings, and Kern Counties in the central part of the southern San Joaquin Valley. Agricultural development in the area has created a demand for water that already exceeds the supply available from the initial Central Valley project. Studies will be continued on water supply and requirements, land use, economics, and distribution design during fiscal year 1961.
Wasco-Maricopa unit		(125,188)	(6,534)	(37,654)	(81,000)	Investigation is to determine engineering and economic feasibility of supplying water to the extreme southern end of San Joaquin Valley near the city of Bakersfield. The area is presently dependent upon pumping from the ground water basin with present use far exceeding natural replenishment. Funds are required to determine if a supply can be furnished from Friant-Kern canal or an extension of that canal.
Sacramento River division, Yolo-Zamora unit.		101,397	93,656	7,741		Located on west side of Sacramento River in Yolo County. Project would provide supplemental water for a large area of highly productive land in the Yolo-Zamora Water District and vicinity as a unit of the Central Valley project. Present economy is based upon the production and marketing of agricultural products. The principal products the project area would produce are alfalfa, tomatoes, sugar beets, irrigated pasture, nuts and truck crops. All fieldwork had been completed at the close of fiscal year 1958. Funds in fiscal year 1960 will be used for reviewing and processing of the final report.
San Felipe division		400,000	3,302	105,599	170,000	121,099 A cost-sharing contract for the investigation was executed between the United States and the Santa Clara-Alameda-San Benito Water Authority, pursuant to H.J. Res. 585 of Aug. 27, 1958. The investigation will explore the feasibility of bringing supplemental water to a 300,000 acre area in which the population is increasing at a tremendous rate. The growth has resulted in the heavy overtaxing of local water supplies (principally ground water) and imperiling an abundant agricultural economy. The proposed feasibility report is scheduled for completion in fiscal year 1963.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 2—Continued							
Central Valley project—Continued							
Stony Creek division, Black Butte unit.		$63,434	$36,538	$26,896			The Black Butte Dam and Reservoir, located on Stony Creek in north-central California near city of Orland, was authorized for construction by the Corps of Engineers. The project would provide supplemental water for the Glenn County portion of the Sacramento canals service area. The purpose of this investigation is to develop a plan for utilization of the conservation in Black Butte Reservoir and make arrangements for repayment of reimbursable costs allocated to irrigation. The present demands are principally for irrigated pasture and forage crops for livestock with lesser demands for almonds, prunes, milo, field corn, olives, citrus, and sugar beets. This irrigation service could be integrated very easily with Central Valley project plans for ultimate service to Sacramento canals unit. The study is to be completed in fiscal year 1960.
Trinity River division, Clear Creek south unit.		132,000	14,785	43,033	$44,000	$30,182	The authorizing legislation for the Trinity River division directed the Secretary of the Interior to, among other things, "provide, by means of storage as necessary, such control and conservation of Clear Creek flows * * *." The purpose of the investigation is to explore the possibilities of local service from Whiskeytown Reservoir, under construction on Clear Creek, or alternate local sources, to some 15,000 acres near Redding, Calif., which are now receiving an inadequate supply. The raising of olives, irrigated pasture for livestock, peaches, and strawberries, is the basis of the local agricultural economy. Report to be completed in fiscal year 1962.
Klamath project:							
Butte division.	California	316,962	299,364	17,598			Investigation in progress of the feasibility of providing irrigation water for 41,000 acres of land in the Butte Valley and Oklahoma units in north-central California—areas which are included in the upper Klamath River Basin. The project works would bring a firm water supply to lands for the production of barley for malting, clover for seed, potatoes, alfalfa, and irrigated pasture. Surface drainage would be provided for the lands including those in the closed basin of Butte Valley. An organization of project landowners has

							irrigation water for 41,000 acres of land in the Butte Valley and Oklahoma units in north-central California—areas which are included in the upper Klamath River Basin. The project works would bring a firm
							water supply to lands for the production of barley for malting, clover for seed, potatoes, alfalfa, and irrigated pasture. Surface drainage would be provided for the lands including those in the closed basin of Butte Valley. An organization of project landowners has participated financially in the study. A report is scheduled for completion in fiscal year 1960.
Klamath project extensions	Oregon and California.	205,860	184,965	20,895			The development consists of some 10,000 acres of land contiguous to the existing Klamath project in north-central California and south-central Oregon. These lands would be provided with a firm water supply. The crops most adaptable to the area include barley for malting, clover for seed, pasture, potatoes and livestock. Prospective water users have begun steps toward inclusion of the proposed service areas in adjoining existing irrigation districts. In fiscal year 1960 studies to define the service areas based on local desires will be completed and a feasibility report prepared.
Lost River storage unit	do	347,400	138,133	75,605	84,500	49,162	Investigation in progress to develop a feasible plan to provide for maximum settlement and agricultural development of the public lands in the Tule Lake area without decrease in the effectiveness of the upper Klamath River Basin as a waterfowl habitat. Supplemental and new water supplies are needed in Langell Valley to maintain the present agricultural economy of the local area and provide for its expansion. Water would be furnished to lands primarily for the production of irrigated pasture, barley for malting, alfalfa hay, oats, and clover. Report is to be completed in fiscal year 1962.
North coast project, Round Valley unit.	California	170,000	24,263	62,969	45,200	37,568	The investigation will be made to determine the most feasible plan for providing irrigation water and drainage for about 15,000 acres of land in Mendocino County about 150 miles north of San Francisco. Irrigation is needed to increase the yield and variety of crops to meet the demands of a rapidly increasing population in an area of only minor agricultural development. The main crops that would be grown under irrigation are pasture and forage crops—alfalfa, clover and hay. Some pears, walnuts, peaches, and truck crops have been successfully grown in the area. The report is scheduled for completion in fiscal year 1962.
Solano project, Monticello powerplant.	do	41,444	21,137	20,307			Investigation to determine need and feasibility of a powerplant to be located at the existing Monticello Dam, the key feature of the Solano project in Solano County. The dam now includes penstocks for power development. Engineering studies are essentially complete. Economics studies and other considerations relating to possibilities of Federal or non-Federal construction remain for completion.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 2—Continued							
Walker River project	California and Nevada.	$437,000	$193,609	$79,958	$35,000	$128,433	Investigation in progress to determine feasibility of regulating the surplus flows of Walker River for flood control, power generation, and late season supplemental irrigation of 71,000 acres in the vicinity of Yerington, Nev. The plan contemplates production of about 25,200 kilowatts of hydropower. The feasibility report is to be completed in fiscal year 1963.
Washoe project (ultimate phase)	do	531,469	163,772	20,199		347,498	Washoe project is located in east-central California and western Nevada in the vicinity of Reno, Nev. An investigation recently was undertaken to determine the desirability of adding Hope Valley division to the authorized Washoe project, initial phase, to provide a new and supplemental water supply for 5,300 acres and to provide 15,000 kilowatts of hydroelectric power. Studies to date indicate Hope Valley can be developed independent of the Washoe project, initial phase. Status report scheduled for fiscal year 1960 will give results of investigations to date and provide basis for future investigations.
Other projects, region 2		4,689,900				4,689,900	Project investigations to be initiated or resumed after fiscal year 1961.
Region 3:							
Bridge Canyon project	Arizona	1,187,000	1,165,117	9,800	12,083		Investigations of a potential power project at the Bridge Canyon site on the Colorado River about 117.5 miles upstream from Hoover Dam, transmission lines to load centers, and a silt retention dam at the Coconino site on the Little Colorado River. The funds requested are for continuing the collection of sediment samples and discharge data on the Little Colorado River and for miscellaneous activities relative to proposals for independent development of the project by Arizona or California.
Dixie project	Utah	379,000	326,575	11,800	30,000	10,625	Located in Virgin River Basin in Washington County near St. George, Utah. Investigations of a potential multiple-purpose project to provide irrigation to about 7,000 acres of new land and a supplemental water supply for about 9,000 acres, generation of hydroelectric power, flood control, recreation and fish and wildlife benefits. A report was completed in 1953 and the funds for fiscal year 1960 and fiscal year 1961 are required to re-

							Arizona or California.
Dixie project	Utah	379,000	326,575	11,800	30,000	10,625	Located in Virgin River Basin in Washington County near St. George, Utah. Investigations of a potential multiple-purpose project to provide irrigation to about 7,000 acres of new land and a supplemental water supply for about 9,000 acres, generation of hydroelectric power, flood control, recreation and fish and wildlife benefits. A report was completed in 1953 and the funds for fiscal year 1960 and fiscal year 1961 are required to reanalyze the project and bring the report up to date based on current conditions.
Eldorado Valley project	Nevada	155,000		4,900		150,100	Feasibility investigations of a potential project to pump water from Lake Mead for industrial, municipal, and homesite irrigation uses in Eldorado Valley south of Boulder City. A reconnaissance report was completed early in fiscal year 1960. The local interests have engaged a private consultant to make detailed studies and the Bureau has deferred further investigations of the project. Part of the fiscal year 1960 funds will be used to cooperate with the local interests in developing their plans.
Marble Canyon project	Arizona	934,000	919,245	10,070	4,685		Investigations of a potential power project on the Colorado River about 32.8 river miles below Lees Ferry, Ariz., and a silt retention dam on the Paria River near the Utah-Arizona State boundary. A report to be completed in fiscal year 1960. The States of Arizona and California have expressed their intent, independently of one another, to build this project and the funds for fiscal year 1961 will be used to continue any necessary cooperation with those States.
Middle Gila River project	do	350,000	276,660	56,560	10,000	6,780	Feasibility investigations now under way of a multiple-purpose project for flood control and supplemental irrigation water for 100,000 acres of land in the San Carlos project area, Arizona. The funds for fiscal year 1960 will be used to complete the feasibility report and those for fiscal year 1961 are required to continue collection and analysis of data on sediment load in the Gila River.
Winslow project	do	233,500	56,260	2,940	4,000	170,300	Potential irrigation development on Little Colorado River near Winslow, Ariz., which will involve some 19,750 acres of land. Funds for fiscal year 1960 and fiscal year 1961 will be used for continuation of stream gaging to provide data needed for future investigations.
Other projects, region 3		668,000	110,839			557,161	Investigations to be initiated or resumed after fiscal year 1961.
Region 4:							
Animas-La Plata project	Colorado and New Mexico.	1,188,000	667,156	146,038	130,500	244,306	Located in San Juan River Basin in La Plata County, Colo., and San Juan County, N. Mex. Investigation in progress to evolve multiple-purpose plan for efficient utilization of waters of Animas and La Plata Rivers and to provide data for use by Colorado and New Mexico in selecting projects for use of allotted Colorado River water. The plan envisions full irrigation of some 61,000 acres, supplemental water for 25,600 acres, and production of 166,000 kilowatts of power. It is a priority project under sec. 2, Public Law 485, 84th Cong., 2d sess.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 4—Continued							
Bear River project	Idaho and Utah	$1,065,000	$800,710	$117,443	$133,000	$13,847	The Bear River and its tributaries now supply irrigation water to over 480,000 acres of land in northern Utah and southeastern Idaho. A substantial part of this land, however, receives an inadequate supply to achieve full production and there are thousands of acres of excellent land remaining unirrigated while an average of nearly 1 million acre-feet of water annually flows into the Great Salt Lake and is lost. The purpose of this investigation is to develop plans for a project that would furnish a full water supply to some 50,700 irrigable acres, supplemental water for 29,300 acres, produce 45,400 kilowatts of hydroelectric power and provide municipal and industrial water to meet the needs of the expanding population and industry in Box Elder, Utah.
Bostwick Park project	Colorado	151,507	113,207	33,300	5,000		Investigation in progress to provide a full water supply for about 1,500 acres and supplemental irrigation water for some 5,800 acres presently in short supply near Montrose, Colo., by construction of Silver Jack Dam and Reservoir on Cimarron Creek. A feasibility report is scheduled to be completed in fiscal year 1961. The State of Colorado is contributing $18,000 of the fiscal year 1960 program. It is a priority project under sec. 2, Public Law 485, 84th Cong., 2d sess.
Dallas Creek project	do	448,000	111,798	91,516	79,000	165,686	Located along Uncompahgre Creek in southwestern Colorado near town of Montrose. Investigation in progress of project to provide a full water supply for about 15,800 acres and supplement the water supply for some 6,200 acres to eliminate chronic shortages as outlined in 1950 Gunnison River reconnaissance report. Study of the feasibility of developing 16,000 kilowatts of hydroelectric power is also contemplated. A feasibility report is to be completed in fiscal year 1964. Project has been assigned priority under sec. 2 of Public Law 485, 84th Cong., 2d sess.
Dolores project	Colorado and Utah.	877,000	634,414	104,811	119,000	18,775	Located in southwestern Colorado and southeastern Utah near town of Dolores. Investigation in progress, scheduled for completion in fiscal year 1962, of plans to provide a full water supply for 35,500 acres of presently dry farmed land and a supplemental supply for 30,600 acres urgently in need of additional water. It is a

Dolores project	Colorado and Utah.	877,000	634,414	104,811	119,000	18,775	Located in southwestern Colorado and southeastern Utah near town of Dolores. Investigation in progress, scheduled for completion in fiscal year 1962, of plans to provide a full water supply for 35,500 acres of presently dry farmed land and a supplemental supply for 30,600 acres urgently in need of additional water. It is a priority project under sec. 2, Public Law 485, 84th Cong., 2d sess.
Fruitland Mesa project	Colorado	330,885	302,953	22,924	5,008		Investigation in progress, scheduled for completion in fiscal year 1961, of plans to provide new and supplemental irrigation water to an important agricultural area of some 23,400 acres in Delta and Montrose Counties in western Colorado. It is a priority project under sec. 2, Public Law 485, 84th Cong., 2d sess. $12,000 of the funds programed for fiscal year 1960 are contributions by the State of Colorado.
San Miguel project	do	750,000	245,879	57,035	30,000	417,086	Investigation in progress of a project located in Montrose and San Miguel Counties in southwestern Colorado which will furnish a full irrigation water supply for 39,800 acres of new land and supplemental water for some 10,200 acres with late season water shortages. The project has a favorable benefit-cost ratio as indicated in a 1953 reconnaissance report and is one of the priority projects under sec. 2 of Public Law 485. A feasibility report is scheduled to be completed in fiscal year 1965. The fiscal year 1960 program includes a contribution of $22,000 by the State of Colorado.
Sublette project Buckskin division	Wyoming	543,000	385,993	28,025		128,982	Located in Sublette County in southwestern Wyoming. Investigation in progress to determine feasibility of regulating and utilizing flows of the Green River tributaries for supplying full water requirements to some 37,400 acres, supplemental water for some 10,500 acres in short supply and producing 2,000 kilowatts of power. A feasibility report is to be completed in fiscal year 1963. It is a priority project under sec. 2 of Public Law 485, 84th Cong., 2d sess.
West Divide project	Colorado	785,000	305,469	101,374	92,360	225,797	Located in Garfield and Pitkin Counties in western Colorado in vicinity of Carbondale and DeBeque. Investigation in progress to determine feasibility of project to develop new and supplemental irrigation water for about 65,600 acres and municipal and industrial (oil shale) water. Project could also produce about 4,500 kilowatts of power. It is a priority project under sec. 2 of Public Law 485. The fiscal year 1960 program includes $44,822 of cost of mapping contributed by State of Colorado.
Woodruff-Cokeville project	Utah and Wyoming.	135,413	120,937	14,476			Investigation in progress to determine feasibility of developing supplemental water for about 43,900 acres along Bear River in vicinity of Woodruff, Utah, and Cokeville, Wyo. Report is needed to assist States of Utah and Wyoming and local irrigators in planning for most advantageous use of water as apportioned by the Bear River Compact which was approved by Congress in 1958. Report to be completed in fiscal year 1960.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 4—Continued							
Other projects, region 4		$4,938,000	$699,172			$4,238,828	Feasibility studies to be initiated or resumed after fiscal year 1961.
Region 5:							
Arbuckle project	Oklahoma	117,379	106,887	$10,492			Located on Rock Creek, a tributary of the Washita River, in south-central Oklahoma. Feasibility investigation of a plan to provide municipal and industrial water supplies, flood control and other benefits in an area where there is an acute shortage of water at the present time, coupled with a rapidly increasing need for additional water due to community and industrial growth. A reconnaissance report completed during the 2d quarter of fiscal year 1958 summarized potentialities of the project. Following review of the report and accomplishment of participation agreements with local interests, feasibility studies were undertaken during the 3d quarter of fiscal year 1958. The report will be completed in fiscal year 1960.
Chikaskia project	Kansas and Oklahoma.	109,117	11,217	16,050		81,850	Located in southeastern Kansas and northeastern Oklahoma in vicinity of Wellington and Caldwell, Kans., and Enid, Blackwell, and Braman, Okla. Feasibility investigation of a plan to provide municipal water supply, irrigation, flood control, and other benefits in an area where critical water shortages prevail, particularly during the dry summer months. A reconnaissance report completed in fiscal year 1956 which summarized potentialities of the project was furnished to State and project interests. The project interests have been considering other means of obtaining needed water supplies. Funds programed for fiscal year 1960 will be utilized to provide appropriate assistance to project interests in connection with their consideration of Bureau of Reclamation findings. Further investigations by the Bureau have been deferred pending decision by the local interests.
Liberty Bottoms project	Oklahoma and Texas.	95,880	36,841	52,339	$6,700		Feasibility investigation of a plan to develop irrigation on about 12,100 acres of land along the Red River below Denison Dam in southeastern Oklahoma and northeastern Texas. A reconnaissance report was completed in fiscal year 1958 and submitted to the local interests

							project interests in connection with their consideration of Bureau of Reclamation findings. Further investigations by the Bureau have been deferred pending decision by the local interests.
Liberty Bottoms project	Oklahoma and Texas.	95,880	36,841	52,339	$6,700		Feasibility investigation of a plan to develop irrigation on about 12,100 acres of land along the Red River below Denison Dam in southeastern Oklahoma and northeastern Texas. A reconnaissance report was completed in fiscal year 1958 and submitted to the local interests for their information. Feasibility investigations are now underway and a report is scheduled to be completed in fiscal year 1961.
Mangum project	Oklahoma	163,155	59,555	18,900	44,600	40,100	Investigations made to date of this project on the Salt Fork of Red River indicate that the potential development probably is the most favorable source of an urgently needed supplemental water supply for the existing W. C. Austin project in south-central Oklahoma. However, available geologic data indicate that excessive reservoir leakage might occur. Funds scheduled for fiscal year 1960 would initiate geologic explorations to determine subsurface conditions and corrective measures needed. Contingent upon these findings, feasibility study would be completed in fiscal year 1962.
Mountain Park project	do	142,733	31,941	81,092	29,700		Located on Otter Creek in Tillman County in southwestern Oklahoma. Feasibility investigation of a plan to provide municipal water supplies and other benefits in the project area. A reconnaissance report completed in fiscal year 1956 summarized potentialities of the project, including flood control and an irrigation potentiality. Urgent need for municipal water supplies by the project cities, together with present and contemplated expansion of facilities at the Altus, Okla., Air Force Base, makes the earliest possible provision of new or supplemental water supplies imperative for this area. The feasibility report will be completed in fiscal year 1961.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
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ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 5—Continued							
Rio Grande water salvage project	New Mexico and Colorado.	$600,000	----------	$68,450	$76,000	$455,550	Investigation of the opportunities for salvage for beneficial use of Rio Grande Basin waters through channelization, drainage, and other measures. The need for such salvage has been recognized in numerous reports and the results of experience to date with the channelization program on the middle Rio Grande offers ample evidence of the value of such works in reducing water losses. Occurrence of the recent extreme and prolonged drought, increasing basin water demands and deterioration of channel conditions through the middle valley with consequent great increase in water losses, resulted in New Mexico and Colorado being in debit status under the Rio Grande Compact and emphasized the need for water salvage measures. Public Law 858, 80th Cong., 2d sess., 1 of the acts authorizing the middle Rio Grande project, directed the Bureau of Reclamation, in conjunction with other Federal agencies, to study feasible means of effecting water salvage in the Rio Grande Basin above Caballo Reservoir. Certain water salvage measures are being accomplished in connection with construction of that project and additional basic data are being collected. An extensive program of hydrologic data collection is necessary to evaluate the extent and location of present and potential water losses as a basis for development of feasible water salvage plans. The funds scheduled for fiscal year 1960 would be used for initiation of water salvage studies as directed by Public Law 858 to identify, through reconnaissance studies, those areas meriting detailed study in New Mexico and Colorado. The reconnaissance report for the New Mexico Division will be completed in fiscal year 1960, and for the Colorado Division in fiscal year 1961. The feasibility studies will be summarized in a report scheduled for completion in fiscal year 1967.
San Juan-Chama project	Colorado and New Mexico.	1,172,936	1,122,995	29,941	20,000	----------	Project involves transbasin diversion of water from the headwaters of the San Juan River in southwestern Colorado to the Rio Grande Basin in New Mexico.

							in fiscal year 1960, and for the Colorado Division in fiscal year 1961. The feasibility studies will be summarized in a report scheduled for completion in fiscal year 1967.
San Juan-Chama project	Colorado and New Mexico.	1,172,936	1,122,995	29,941	20,000		Project involves transbasin diversion of water from the headwaters of the San Juan River in southwestern Colorado to the Rio Grande Basin in New Mexico. Legislation authorizing the Colorado River storage project recognized the San Juan-Chama project as a participating project and assigned priority to its investigation. A feasibility report has been completed and is being processed for submission to Congress for authorization. Fiscal year 1960 and fiscal year 1961 funds would be used to maintain liaison, make any necessary additional studies, and effect cooperation with concerned local and State agencies and other interests in connection with processing of the report and its consideration by Congress. The plan proposed for authorization in the feasibility report would provide supplemental water for about 39,330 acres of the Rio Arriba division and 81,610 acres of irrigable land in the Middle Rio Grande conservancy district.
San Luis Valley project	Colorado	259,833	243,149	6,684	10,000		Project is located in south-central Colorado in Rio Grande, Mineral, Hinsdale, Saguache, and Conejos Counties. The Conejos division has been constructed and is in operation. A feasibility report on the Rio Grande and Weminuche Pass divisions is under review. Amounts scheduled in fiscal year 1960 and fiscal year 1961 are for completion of the feasibility report on the closed basin division; continuation of the program of water sampling and measurement of ground water fluctuations for that division; continuation of hydrologic studies, snow surveys, and runoff forecasts; and maintenance of contacts with local interests in the Rio Grande division.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 5—Continued							
Texas basins project	Texas	$5,484,855	$3,347,812	$667,643	$458,000	$1,011,400	Investigation directed toward development of an overall plan for optimum development of the flows of the Texas gulf streams for municipal and industrial water supply, irrigation, flood control, fish and wildlife, recreation and related purposes, was initiated by the Bureau in 1955 with completion of the report scheduled for fiscal year 1961. State interest, need for coordination of related efforts of other Federal agencies, and recognition of national interest involved resulted in authorization of the U.S. Study Commission for Texas by Public Law 85-843 in August 1958 to formulate a plan of development of the land and water resources of all but 2 of the basins being studied by the Bureau. The Commission report is scheduled for completion by the end of fiscal year 1961 and will provide findings which will influence the plan of development to be advanced in the Bureau's Texas basins project report. The Bureau of Reclamation's report, therefore, has been delayed until fiscal year 1963 and additional funds scheduled for cooperation with the Study Commission and to coordinate the Bureau's plans with those of the Commission. The urgency of providing additional water supplies to meet forecasted municipal and industrial needs requires that reports on units of the overall project, which are justified as individual developments and would be compatible with any plan of overall development, be processed to Congress for authorization prior to completion of the Texas basins project report. As a result, an investigation is now in progress in cooperation with Lower Colorado River Authority to formulate a multiple-purpose plan for the Columbus Bend unit for increasing the dependable water supply obtainable from the lower Colorado River to meet forecast municipal and industrial needs and provide fish and wildlife benefits of national significance and incidental flood control, recreation, and possibly irrigation benefits. This study will be completed in fiscal year 1960. An investigation is also in progress in cooperation with Guadalupe-Blanco River Authority to formulate a multiple-purpose plan for the Hochheim unit to increase

							multiple-purpose plan for the Columbus Bend unit for increasing the dependable water supply obtainable from the lower Colorado River to meet forecast municipal and industrial needs and provide fish and wildlife
							benefits of national significance and incidental flood control, recreation, and possibly irrigation benefits. This study will be completed in fiscal year 1960. An investigation is also in progress in cooperation with Guadalupe-Blanco River Authority to formulate a multiple-purpose plan for the Hochheim unit to increase the dependable water supply obtainable from the Guadalupe River to meet forecast municipal and industrial needs and provide needed flood control and other benefits through development of a dam and reservoir at the Hochheim site. Feasibility report now scheduled for fiscal year 1961. In addition, an investigation is to be initiated in fiscal year 1961 to formulate a multiple-purpose plan for the Falls City unit to regulate flows of the San Antonio River for water supply, flood control, and related purposes through development of a dam and reservoir at the Falls City site. Feasibility report is scheduled for fiscal year 1962.
Waurika project	Oklahoma	208,109	191,612	9,297	3,500	3,700	Located on Beaver Creek near Waurika, Okla. Feasibility investigation of a plan to provide municipal and industrial water supplies, irrigation of some 2,000 acres, and flood control and other benefits. A reconnaissance report was completed in fiscal year 1957 and feasibility investigations are now under way with a report scheduled to be completed by the end of fiscal year 1960. Funds for fiscal year 1961 will be used to continue sediment gaging and hydrologic data collection programs.
Wichita Falls project	Texas	211,169	31,869	4,900		174,400	Located in Little Wichita River Basin in Wichita and Clay Counties near Henrietta, Tex. A reconnaissance report summarizing potentialities of the Little Wichita River primarily for a much needed additional water supply for the city of Wichita Falls, Tex., and Sheppard Air Force Base was completed in fiscal year 1957, and furnished to State and local interests. The local interests have since been considering alternate means of providing the needed water supplies. In August 1958 the electorate of Wichita Falls defeated a bond proposal which would have developed the water resources of the Little Wichita River by private financing. However, at the end of fiscal year 1959, continued exploration of financing plans was being made by project interests. Funds scheduled for fiscal year 1960 will be utilized to provide appropriate assistance to the project interests in connection with their consideration of Bureau of Reclamation findings. Further investigations by the Bureau have been deferred pending a decision by the local interests.
Other projects, region 5		11,100,000				11,100,000	Investigation to be initiated or resumed after fiscal year 1961.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
PROJECT INVESTIGATIONS—continued							
Region 7:							
Fryingpan-Arkansas project	Colorado	$980,000	$911,811	$40,880	$27,309		Project involves transbasin diversion from the headwaters of the Fryingpan River in the Colorado River Basin into the upper Arkansas River Basin in central Colorado. A feasibility report has been completed and submitted to Congress for authorization. During fiscal year 1959, local interests suggested the substitution of a reservoir on the Fryingpan River for the Aspen Reservoir proposed in the report now before Congress. These studies were initiated last year with funds contributed by the State of Colorado and a report thereon is to be completed in fiscal year 1960. The balance of the funds in fiscal year 1960 and those for fiscal year 1961 will be used to service Congressional consideration of authorization.
Granada project	Kansas and Colorado	72,000	50,506	16,158	5,336		This is an investigation being made in cooperation with the Corps of Engineers and the State of Kansas of plans for a multipurpose development on the Arkansas River in eastern Colorado and western Kansas to conserve return flows and flood waters for irrigation purposes. There appears to be little interest in irrigation at this time and it is planned to complete the study early in fiscal year 1961 with the preparation of a status report summarizing findings to date.
Other projects, region 7		1,301,000				$1,301,000	Investigations to be initiated or resumed after fiscal year 1961.
Miscellaneous services:							
Cost of minor work in connection with completed reports		539,500	23,697	48,786	59,200	407,817	After feasibility reports are completed they are submitted to the States and other Federal agencies for review prior to their submission to Congress for authorization During this review process and during Congressional consideration of the projects, experience has shown that it will no doubt be necessary to perform some additional work on some of those investigations but it is impossible to predict in advance which of the reports will be so involved, or the amount of additional work required. The funds programed for this item will provide for this work as it arises and the costs incurred will be charged to the applicable investigation.
Print project reports		104,670		14,670	15,000	75,000	Funds are required for printing of project reports. Print

							consideration of the projects, experience has shown that it will no doubt be necessary to perform some additional work on some of those investigations but it is impossible to predict in advance which of the reports will be so

							involved, or the amount of additional work required. The funds programed for this item will provide for this work as it arises and the costs incurred will be charged to the applicable investigation.
Print project reports		104,670		14,670	15,000	75,000	Funds are required for printing of project reports. Printing costs are chargeable to the specific projects but are not scheduled with those projects because it is impossible to predict just when and what reports will be cleared in the review by States, Federal agencies, and the Congress, and ordered to be printed.
Subtotal, project investigations		60,640,947	20,130,872	3,739,038	3,274,540	33,496,497	
GENERAL ENGINEERING AND RESEARCH							
Planning studies:							
Region 2:							
Land subsidence studies		103,701	91,171	12,530			Land subsidence is known to exist in 3 extensive areas of the lower San Joaquin area in Central Valley, Calif. Settlement of the deep alluvial or sedimentary soils which are irrigated to a great extent from ground water pumping present a problem in construction and maintenance of engineering features required for the development of these arid areas as well as a major maintenance problem with existing structures some of which already have been affected. The studies are directed toward the determination of causes and controlling factors in such problem areas, looking to possible means of alleviating or minimizing the adverse effects of such subsidence. The program for fiscal year 1960 will provide for participation by the Bureau in this program and the preparation of a report by the interagency committee.
Region 3:							
Colorado River water right litigation		92,000	71,916	7,880	2,000	10,204	Litigation is now underway in the Supreme Court case of *Arizona* v. *California* for determination of the respective rights of California and Arizona to the water in the Colorado River. The funds programed are for research and collection of data which will have a bearing on the litigation. Costs also are being incurred for the reproduction and review of transcripts of the hearings and for other miscellaneous activities including correspondence and meetings with States, Federal agencies, and other interested parties relative to data bearing on the case.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
GENERAL ENGINEERING AND RESEARCH—continued							
Planning study—Continued							
Miscellaneous services:							
General planning studies		$1,489,604	$869,326	$79,200	$81,000	$460,078	These funds are allotted to the Commissioner's office, Denver, for general planning studies not related to specific projects but which are important to the Bureau's overall program. The objective of this research program is the development of improved procedures and techniques for evaluating and planning future reclamation projects to insure the fullest utilization of the water resources of the West. This will involve procedures for determining water resources; water requirements of the potential projects and other basin uses; inflow spillway design floods for dams and other structures; amount and disposition of sediment in reservoirs, conveyance channels, and canals; expected aggradation and degradation of streams as a result of construction of water control works, etc.; and the most beneficial operation of the system of reservoirs in the development and operation of river basin systems.
Hydrologic studies		555,403	415,843	19,560	20,000	100,000	These funds are to permit the Bureau to cooperate with other agencies, through technical subcommittees of the Interagency Committee on Water Resources as well as through direct interagency agreement on various investigative projects. Through these projects, various types of basic data and various items of research, involving hydrologic procedures or equipment, which are of interagency value, are jointly financed and carried on. These projects vary in nature, with the Bureau sharing in those which are aimed at development of better data, procedures or equipment for use in hydrologic and sedimentation studies in western areas, which in turn have as their objective the better use of the limited water supplies of the West. During fiscal year 1960 and fiscal year 1961, funds are to be used for evaporation and transpiration studies; development of radioisotope sediment density sampler, development of equipment for measuring sediment loads in streams, and for bringing up to date sediment load inventory and hydrologic basin maps.

						sediment density sampler, development of equipment for measuring sediment loads in streams, and for bringing up to date sediment load inventory and hydrologic basin maps.
Subtotal, planning studies		2,240,708	1,448,256	119,170	103,000	570,282	
Engineering methods and materials research:							
Structural, including concrete		339,200			44,000	295,200	Funds will be used to conduct research directed toward improving concrete as an engineering material and reducing its cost. Investigations will be made into methods of beneficiating low quality concrete aggregates by such means as elastic fractionation, hydraulic jigging, and heavy media separation; to establishing procedures for the effective use of water-reducing retarding agents; to extending knowledge of the factors that influence the durability of concrete; and, to improving methods of evaluating potential performance of concrete. Investigations will be made (*a*) to aid in the design of various reinforced concrete structures, (*b*) on properties of high strength concrete for pipe, (*c*) on high bond reinforcing steel, (*d*) on unreinforced concrete tunnel linings, (*e*) on prestressed concrete and precast concrete slabs, and (*f*) on stress-strain relationships in concrete and rock when completely restrained.
Cement, pozzolan, and admixtures		136,800			16,000	120,800	This research is concerned with portland cement, pozzolans and admixtures as they affect the properties and economy of concrete. Investigations will be made to enable the preparation of better specifications for these products. These investigations are often carried out on a cooperative basis with trade associations and other Government agencies. Studies will be made on the behavior of cements and pozzolans in concrete particularly with respect to chemical composition and the hydration products developed, and on the effects of different pozzolans and admixtures on the durability o concrete. False set in cement is another problem requiring further attention.
Hydraulic studies, including oxygen content of reservoirs and streams.		239,800			30,400	209,400	Funds will be used to extend investigations performed for specific projects so that the data obtained may have general application. Unresolved are studies of energy dissipators for high velocity flows, cavitation problems, means of improving performance of gates, valves, pipe, and conduits, air demand of siphons, protection of banks against waves and scour, and development of improved testing equipment. Exploratory studies will be initiated on the relationships of water control structure operations on dissolved oxygen content and the development of techniques for replenishing oxygen where necessary.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
GENERAL ENGINEERING AND RESEARCH—continued							
Engineering methods and materials research—Continued							
Earth, rock, bituminous, and riprap materials and placement methods.	----------	$299,300	----------	----------	$38,000	$261,300	Earth research will be directed to improvement of undisturbed soil sampling and soil testing methods, and to increasing knowledge of the engineering properties of soils for direct application to the design of earth dams and other Bureau structures. Inplace testing methods and rapid nuclear density and moisture meters will be studied for more economical construction control of earthworks and in the investigation of subsurface soil conditions. Particular attention will be given to the improvement of soils by adding gravels and chemicals; to pore-water pressure effects on stability of earth dams; and to the effects of improving backfill conditions on concrete pipe stresses for the purpose of obtaining more economical structure designs. Investigations on the physical properties of rock varying in mineralogic composition will be extended to provide general reference data, and to permit more accurate early evaluation of prospective structure sites in advance of detailed studies. New asphaltic products for surfacing canals, reservoirs and dams, and improved bituminous materials for roofing and grouting purposes will be tested and evaluated. Studies will continue on improved methods of evaluating rock riprap, and on the use of substitutute riprap, such as soil-cement and asphaltic materials, for areas, especially in the Midwest, where rock is unavailable. New placement techniques will be evaluated.
Evaporation reduction materials and methods.	----------	418,600	----------	----------	56,000	362,600	Funds will be used to continue investigations in the practicability of employing certain chemicals as surface films to reduce evaporation from reservoirs. Encouraging results were obtained on a 2,500-acre reservoir, Lake Hefner, in 1958. Newly developed materials and techniques showed additional promise. Investigations will be made concerning better materials, better methods of application, better methods of detecting the film, biological and water quality aspects, thermal and wind effects, and applicability to stock ponds.

							practicability of employing certain chemicals as surface films to reduce evaporation from reservoirs. Encouraging results were obtained on a 2,500-acre reservoir, Lake Hefner, in 1958. Newly developed materials and techniques showed additional promise.
Corrosion, plastics, special applications and techniques.		141,300			15,600	125,700	Investigations will be made concerning better materials, better methods of application, better methods of detecting the film, biological and water quality aspects, thermal and wind effects, and applicability to stock ponds. New developments in protective coatings, particularly for protection of submerged and buried steel, and including erosion resistant coatings, will be evaluated. Studies will be made on cathodic protection, and improved methods of measuring corrosivity of soil and water. Further information will be gathered on new joint sealing compounds, and developments in the uses of plastics as an engineering material. Improved methods and techniques will be sought for the analysis and application of new products, including the use of radioisotypes, X-ray diffraction spectographs, and chemical methods.
Foreign currency research, necessary support in U.S. dollars.		100,000			50,000	50,000	The fiscal year 1961 budget includes, as a separate request, funds to cover research to be conducted in foreign countries under the foreign currency research program (7 U.S.C. 1704, sec 104k). This item is for administrative support, such as travel to and from ports of embarkation which cannot be paid in for foreign currency.
Subtotal, engineering methods and materials research.		1,675,000			250,000	1,425,000	
Total, engineering and economic investigations.		80,688,323	30,934,903	4,708,018	4,367,447	40,677,955	
ADVANCE PLANNING							
Region 1:							
Chief Joseph Dam project, Greater Wenatchee division.	Washington	300,885	299,237	1,648			The Greater Wenatchee division of the Chief Joseph Dam project, consisting of 4 units—East, Brays Landing, Howard Flat, and Moses Coulee—was authorized on May 5, 1958. The Moses Coulee unit was deferred because no steps were taken to enter into the single irrigation district, required by the authorizing act. The remaining 3 units total some 6,700 acres of irrigable land. The development of an irrigation water supply for the division is urgently needed to replace land that will be or has been lost through subdivision of apple orchards for housing areas, the construction of a new highway through the division, and the potential construction of Rocky Beach and Wells Dams. The development of new agriculture land will also serve as the primary factor in the expansion of the economics of the area. In fiscal year 1959 a definite plan report was prepared. Funds for start of construction were provided in the 1960 Public Works Appropriation Act as approved Sept. 10, 1959. The general investigation funds for fiscal year 1960 were used pending the availability of the construction allotment.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
ADVANCE PLANNING—continued							
Region 2: Washoe project (initial phase)	Nevada and California.	$1,605,591	$1,502,346	$103,245			The Washoe project located in eastern California and western Nevada, will provide supplemental irrigation water to 60,460 acres of land in need of a dependable late season water supply and a full supply for 5,100 acres of presently undeveloped arable land. Control of the high spring runoff will reduce flood damage and with project drainage will improve 30,900 acres of presently waterlogged land. The project also will produce 28,000 kilowatts of hydroelectric power greatly needed in western Nevada. The funds for fiscal year 1960 will be used to continue the detailed preconstruction studies but beginning in fiscal year 1961, this work will be financed from the "Construction and rehabilitation" appropriation.
Region 5: Canadian River project	Texas	509,994	470,190	39,804			Project will consist of a multipurpose reservoir on the Canadian River near Borger, Tex., and an aqueduct system to deliver municipal and industrial water to several cities in northern Texas. Detailed preconstruction studies were interrupted in 1954 by a decision by local interests to explore the possibility of proceeding with private financing. These efforts were unsuccessful and the local interests have since requested Federal development under the original authorization and have contributed funds toward completing the preconstruction work. Vol. I of a definite plan report, exclusive of the financial analysis portion, was prepared in draft form in 1954. The report will be revised and completed, in light of changed economic conditions and recent developments, in fiscal year 1960.
Lower Rio Grande rehabilitation project: La Feria division.	do	39,010	26,510	12,500			This project, located in Cameron County in the lower Rio Grande Valley, was authorized by act of Sept. 22, 1959. It will involve rehabilitation of the existing facilities to insure a dependable water supply for 26,660 acres of land. The local interests have contributed $12,500 for detailed preconstruction studies leading to completion of the definite plan report early in fiscal year 1961.
Region 7: Trinidad project	Colorado	226,387	199,979	26,408			Investigation of irrigation aspects of a multiple-purpose

Lower Rio Grande rehabilitation project: La Feria division.	do	39,010	26,510				1959. It will involve rehabilitation of facilities to insure a dependable water supply for 26,660 acres of land. The local interests have contributed

							$12,500 for detailed preconstruction studies leading to completion of the definite plan report early in fiscal year 1961.
Region 7: Trinidad project	Colorado	226,387	199,979	26,408			Investigation of irrigation aspects of a multiple-purpose dam and reservoir authorized for construction by the Corps of Engineers. The project is urgently needed to provide protection from a serious and long standing flood problem and for regulation and conservation of waters of the Purgatoire River for more beneficial and efficient irrigation use. A definite plan report is to be completed in fiscal year 1960 on the irrigation phase. Continuation of negotiations and discussions with the local interests after fiscal year 1960 will be financed from the "Construction and rehabilitation" appropriation.
Subtotal, advance planning		2,681,867	2,498,262	183,605	(2)	(2)	
INVESTIGATIONS OF EXISTING PROJECTS							
Region 2: Orland project	California	25,000			$25,000		East Park Dam of the Orland project located in Glenn and Tehama Counties was constructed prior to 1910, when only meager rainfall and runoff records were available. Analysis of 50 years of records has shown the serious inadequacy of the present spillway to handle potential flood inflows. This study is needed to determine proper method and cost of providing sufficient spillway capacity at East Park Reservoir.
Region 4: Grand Valley project, Orchard Mesa division.	Colorado	10,000			10,000		Most of the facilities of the Orchard Mesa division, which is located in the vicinity of Grand Junction, Colo., have been in operation for many years. The canals have deteriorated to the point that it is estimated some 30 percent of the water delivered to the system is lost through seepage. This has created a serious and progressively worsening drainage problem. In addition, there is a continuing danger of canal failure. To protect the Government's investment in the division, an investigation is to be made in fiscal year 1961 to develop plans for rehabilitation and betterment program to correct this situation.
Uncompahgre project	do	26,234	1,771	24,463			Project is located in Montrose and Delta Counties in west-central Colorado. Investigation to determine rehabilitation and betterment needs, prepare plans for structures to be renovated, prepare economic and repayment studies, conduct negotiations with the water users, and prepare a rehabilitation and betterment report in fiscal year 1960.

[2] Beginning with fiscal year 1961 it is proposed that advance planning work be financed from the "Construction and rehabilitation" appropriation. A fund requirement of $254,000 for fiscal year 1961 is justified for this activity under that appropriation.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
INVESTIGATIONS OF EXISTING PROJECTS—continued							
Region 5:							
Vermejo project	New Mexico	$7,800		$300			Feasibility investigation of a plan for modification of the existing Vermejo Diversion Dam. The existing dam, which was constructed about 1914, is of questionable structural stability, and has its crest about 2 feet lower than required to permit diversion of flows to the capacity of the main canal. Fiscal year 1960 funds would be used to initiate and complete a study of the feasibility of plans for raising the crest of the dam 2 feet by modifying the existing dam, or by replacing the existing dam with a new structure.
Region 6:							
Milk River project	Montana	75,466	$63,937	1,529		$10,000	Reports on field reclassification of class 5 lands in Malta, Glasgow, and Chinook divisions, as provided in Public Law 402, 82d Cong., 2d sess., will be completed in fiscal year 1960. Investigation to determine the cost of increasing the storage capacity of Fresno Dam and Reservoir is scheduled after fiscal year 1961.
Riverton project	Wyoming	74,000	63,800	4,068	$3,300	2,832	This investigation is required to enable compliance with art. 5B on repayment contract No. 14-06-600-67 requiring disposition of 9,474 acres of class 5 lands in Midvale Irrigation District prior to 1962.
Shoshone project	do	43,608	38,985	2,632	700	1,291	Investigations required to enable compliance with art. 12 of the repayment contract which provides that applications for the disposition of class 5 land (8,043 acres) shall be filed by the 10th anniversary of the contract or October 1959, and final disposition made within 5 years thereafter.
Subtotal, investigations of existing projects		262,108	168,493	40,492	39,000	14,123	
ALASKAN INVESTIGATIONS							
Alaska reconnaissance		100,000	68,108	4,342	1,500	26,050	Funds programed to accomplish reconnaissance investigations, studies, etc., on items of general nature or items

ing projects.

ALASKAN INVESTIGATIONS							
Alaska reconnaissance		100,000	68,108	4,342	1,500	26,050	Funds programed to accomplish reconnaissance investigations, studies, etc., on items of general nature or items which cannot be foreseen at this time and scheduled separately.
Chakachamna project		280,000			80,000	200,000	Chakachamna project, located on Cook Inlet about 80 miles west of Anchorage, affords an opportunity for the development of a source of low cost hydroelectric power for utilization within the Cook Inlet Basin. Studies are needed to determine the value of this project as an alternate source of low cost power to serve commercial and industrial needs.
Devil Canyon project		725,000	538,720	120,985		65,295	Devil Canyon project, located on the Susitna River north of Anchorage, is a potential source for a large block of power (450,000 kilowatts ultimate) that could serve the railbelt area from Seward to Fairbanks. Ample available low cost energy would stimulate and afford an opportunity for industrial development and related growth throughout this section of Alaska.
Matanuska Valley project		105,000	8,621	925	1,500	93,954	Studies are underway, in cooperation with the U.S. Department of Agriculture and the Alaska Agriculture Experiment Station in conjunction with the Soil Conservation Service, to determine crop yield benefits that may be derived through irrigation as a basis for establishing feasibility for developing an irrigation system to serve the Matanuska area near the city of Palmer.
Snettisham project		246,224	102,224	122,000	22,000		A prerequisite to the establishment of industry within the Juneau area is sufficient available electrical energy. Snettisham project, located about 28 airline miles southeast of Juneau, would bring about development of such a source of power. The U.S. Forest Service has under sales contract in the area some 7,500,000,000 board feet of timber for paper pulp and other wood products. Development of a newsprint mill and the mining of local deposits of minerals are dependent on the availability of a source of low cost electrical energy, such as could be developed at the Snettisham project. A feasibility report was completed early in fiscal year 1960 on the Long Lake-Crater Lake division and a similar report will be completed on the Speel River division in fiscal year 1961.
Vee project		460,000			140,000	320,000	The study of Vee project, located on the Susitna River northeast of Anchorage, is important to the overall development on the Susitna River above Devil Canyon. Information is needed to evaluate the site's suitability for a dam for upstream storage purposes, and to determine its ultimate contribution in the development of the Susitna River for hydroelectric power production.

Schedule of general investigations program, fiscal years 1960 and 1961—Continued

Program item	State	Total estimated cost	Cost to June 30, 1959	Fiscal year 1960 program	Fiscal year 1961 estimate	Balance to complete investigations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENGINEERING AND ECONOMIC INVESTIGATIONS—Continued							
ALASKAN INVESTIGATIONS—continued							
Stream gaging and sediment sampling		$100,000	$35,986	$4,625	$5,000	$54,389	Funds programed to provide needed stream gaging and sediment sampling stations on lakes, streams, and rivers of Alaska.
Other projects, Alaska		1,444,000	35,597			1,408,403	Studies to be initiated or resumed after fiscal year 1961.
Subtotal, Alaskan investigations		3,460,224	789,256	252,877	250,000	2,168,091	
Total, Bureau of Reclamation		87,092,522	34,390,914	5,184,992	4,656,447	42,860,169	
Transfers to Fish and Wildlife Service		4,395,000		195,000	200,000	4,000,000	These funds will be transferred to the Fish and Wildlife Service for studies by that agency of the effect on fish and wildlife resources of water conservation developments of the Bureau of Reclamation under the Fish and Wildlife Coordination Act as amended in 1958. This will include potential Bureau projects under investigation as well as authorized projects awaiting construction funds or under construction. The funds for fiscal year 1961 will be utilized to conduct detailed studies of approximately 33 Bureau of Reclamation projects.
Total		91,487,522	34,390,914	5,379,992	4,856,447	46,860,169	
Service facilities			391,677	−36,421	−9,745	−345,511	Fiscal year 1961 amount represents the net of acquisition of service facilities and charges to specific investigations.
Stores			68,761	−2,448	−2,511	−63,802	Fiscal year 1961 amount represents the net of acquisition of stores and charges to specific investigations.
Transfers, credits, and other expenditures		−3,494,743	−3,324,596	−174,132	−63,149	67,134	Fiscal year 1961 represents reimbursements for work performed for other Federal agencies, transfer of equipment and goods which do not require funds, etc.
Total expenditures		87,992,779	31,526,756	5,166,991	4,781,042	46,517,990	
Undelivered orders			82,334	−46,270	−27,055	−9,009	Fiscal year 1961 amount represents net change in obligations for goods and services on order but not yet received.

Undelivered orders			82,334	−46,270	−27,055	−9,009	Fiscal year 1961 amount represents net change in obligations for goods and services on order but not yet received.
Total obligations		87,992,779	31,609,090	5,120,721	4,753,987	46,508,981	
Engineering and economic investigations:							
Reconnaissance		3,282,000	250,761	358,629	448,987	2,223,623	
Basin surveys		12,849,668	9,105,014	491,181	290,920	2,962,553	
Project investigations		60,640,947	20,130,872	3,739,038	3,274,540	33,496,497	
General engineering and research planning studies		2,240,708	1,448,256	119,170	103,000	570,282	
Engineering methods and materials research		1,675,000			250,000	1,425,000	
Total, engineering and economic investigations		80,688,323	30,934,903	4,708,018	4,367,447	40,677,955	
Advance planning		2,681,867	2,498,262	183,605			
Investigations of existing projects		262,108	168,493	40,492	39,000	14,123	
Alaskan investigations		3,460,224	789,256	252,877	250,000	2,168,091	
Subtotal, Bureau of Reclamation		87,092,522	34,390,914	5,184,992	4,656,447	42,860,169	
Transfers to Fish and Wildlife Service		4,395,000		195,000	200,000	4,000,000	
Total		91,487,522	34,390,914	5,379,992	4,856,447	46,860,169	

Mr. CANNON. You will have a total of 89 investigations underway in fiscal year 1961, the fiscal year for which we are appropriating, of which 13 are either new or resumptions of previously considered projects. This continues your program at a substantial level.

PROJECTS THAT HAVE NOT MOVED INTO CONSTRUCTION STAGE

How many projects are already completely planned and ready for construction but have not been moved into the construction stage?

Mr. PALMER. Mr. Chairman, we would be glad to supply the list of completed plans for the record. As the chairman is well aware, there are a number of projects before the Congress awaiting authorization. There are other plans which have been completed which have not yet gone the route of being presented to the Congress.

Mr. DOMINY. Actually, Mr. Chairman, at the moment there are relatively few projects or units of projects which have been authorized by the Congress and on which all advance planning has been completed that have not already been placed into the construction pipeline. There are six new starts in this year's budget which would account for six of them. Additional to that, there is the Spokane Valley project, but we have run into some problems and it very likely will require reauthorization. There is the Canadian River project in Texas which has been delayed pending agreement among the local interests and the Kanopolis unit of the Missouri River Basin project on which the detailed studies will be completed this year. Also, detailed advance planning is underway on the Crystal Dam of the Curecanti unit and five participating projects of the Colorado River storage project as well as seven units and divisions of the Missouri River Basin project to prepare them for start of construction.

PROJECTS AWAITING AUTHORIZATION

Additionally, there are a number of significant projects which have been planned through the feasibility planning level and are not yet authorized, which are before the current session of Congress for consideration.

The Fryingpan-Arkansas project in Colorado.

The San Luis division of the Central Valley project in California, which is a substantial project additional to the authorized Central Valley.

The Nebraska midstate project, embracing about 140,000 acres of irrigable land in the Platte River Valley of Nebraska.

The Garrison diversion project, which is planned and was authorized originally as part of the Missouri River Basin in 1944 but which now requires further consideration by Congress by reason of a major shift in the area and by reason of some right-of-way problems under the 1890 Right-of-Way Reservation Act.

The Cheney division of the Wichita project.

The Canton and Norman projects in Oklahoma.

The Burns Creek Dam and Reservoir in Idaho for which construction funds have been appropriated with the proviso that no construction is to be undertaken until the project is authorized.

This just about completes the list of the projects that are authorized as well as projects that are completed for feasibility planning and are now before the Congress but not yet authorized by Congress.

Mr. CANNON. Of these 13 investigations how many are being undertaken at the insistence or at the request of local interests and how much are these local interests contributing to the projects?

Mr. PALMER. Mr. Burnett is here with the detail and the amount of the local contributions.

Mr. BURNETT. The only one there which was specifically asked for by the local interests is the reconnaissance investigation in the Placerville, Calif., area, and they are contributing half the cost. This is a small reconnaissance job to be done in 1 year for a total of $18,000, of which they have agreed to put up $9,000.

Mr. CANNON. Are you saying that out of these 13 projects only 1 has been requested by local interests?

Mr. BURNETT. Only one has specifically been requested.

Mr. CANNON. How did the other 12 originate?

Mr. BURNETT. Some are renewed investigations; most of them are.

Mr. CANNON. Were they originally requested by local interests?

Mr. BURNETT. They were always supported by local interests or we would not have them in the program. They were not specifically requested by local interests.

Mr. DOMINY. Actually the breakdown here between those project investigations which are initiated by the Bureau of Reclamation consonant with the reclamation law which directs us to look into the water resource potential of the 17 Western States area and to report our findings to Congress, as contrasted to a specific request by a local entity to explore a particular project, is this:

Up until the time that we have pretty well satisfied ourselves, at least through a reconnaissance investigation, investigations are always motivated and done by us. But if we have made a reconnaissance examination of an area and it is the judgment of our trained engineers and economists that this area does not merit the detailed expense of a feasibility grade study, it is at that point, if local interests insist that it be carried on, that this legislation that you have made reference to requires such local interests to put up 50 percent of the cost of that study, and it is at that point that that act comes into play.

Mr. CANNON. Do you go up and down the streams on the waterways and the lakes looking for places where you can start something?

Mr. DOMINY. Yes, sir. In the early days of reclamation we looked only at the public land area, of course, and the first projects were all public land areas. The engineers could easily spot in the undeveloped West what appeared to be from a casual observation the most economic and feasible place to start. That is where we made the more detailed investigation.

Mr. CANNON. We have seen how local interests, when required to pay 50 percent of the cost if they request them, are very careful to avoid even the appearance of a request.

Mr. DOMINY. That is true. Until we have at least made a reconnaissance review of any potential project area, normally there is no reason for anyone to be requesting a specific project investigation.

Mr. CANNON. After these projects are prepared and completed, how do you populate them? How do you bring in farmers and families who will cultivate the land and take advantage of these opportunities?

Mr. DOMINY. If it is a public land project that is not settled and developed, of course we go through the process of setting the farms up in farm units and advertising them for homesteading under the Homestead Act.

Mr. CANNON. You advertise through the newspapers?

Mr. DOMINY. Yes, we make it available to the press generally. Then we always put out a mimeographed bulletin which can be distributed to anyone who writes in from time to time.

Mr. CANNON. Do you have any difficulty getting people to occupy all of the area?

Mr. DOMINY. No, sir. On an average we have about 50 applicants for every farm unit that we have available under the Homestead Act.

Mr. CANNON. In such event, suppose you have 50 applicants for one farm, how do you determine who the lucky farmer will be?

Mr. DOMINY. Through a drawing process.

Mr. CANNON. A matter of chance?

Mr. DOMINY. Yes, sir. We put the names in the goldfish bowl——

Mr. CANNON. Do you check his past record for success or failure?

Mr. DOMINY. Indeed we do.

Mr. CANNON. His age, condition of his health, the number of boys in the family, or do you just draw straws?

Mr. DOMINY. No, sir. Under the current practice we have a minimum set of requirements that each veteran must meet in order to be eligible for the drawing.

He has to be within certain age limits; he has to have had certain required farm experience within a certain period of time; he has to have the minimum required financial resources; and he is investigated by a committee as to both his attitude and that of his wife toward farming as a way of life; and until he can satisfy these minimum requirements his name would not be in the drawing.

Then when the drawing is held, of course, let us say we have 50 farm units in project X, and we usually draw twice as many names in the drawing as we have farms because some of the applicants will change their minds at the last minute even if they are successful or they fail to be able to qualify at the last minute under financial requirements, or some other important aspect of the drawing. The first name drawn gets his choice of the 50 farms. He actually can go out and look at them and decide which one suits him, and he announces that.

Then the second man drawn gets his choice of the remainder, and so on, until the farms are occupied.

Mr. CANNON. What percentage dispose of their land within a year?

Mr. DOMINY. A relatively small percentage. We have some figures on the Columbia Basin project.

Mr. CANNON. How many dispose of their holdings within 5 years? In other words, do you have any speculators?

Mr. DOMINY. I am sure that occasionally we get a man who is thinking about a speculative enterprise. On the other hand, he has

to actually move onto the land. He has to actually establish residence there.

Congress has been very lenient under the veterans settlement requirements. He has to live on the land only 7 months of 1 year now in order to establish residence, but we require him to actually move on there and build some kind of a home and occupy it and to start tilling the land.

LAND SETTLEMENT, COLUMBIA BASIN PROJECT

We can put in the record at this point our experience over the last several years of veterans settlement and the number that stayed.

Mr. CANNON. Within 1 year and 5 years.

(The information requested follows:)

LAND SETTLEMENT ACTIVITIES COLUMBIA BASIN PROJECT

Land settlement was initiated on this project in 1948. Since that date 850 Government-owned farm units have been sold under purchase contracts. Prospective buyers have selected 49 additional farm units and 40 of this group are under earnest money agreement. Of the 850 farm units sold to date, title has been conveyed in 351 instances to the purchasers of units who have completed residence, cultivation, and related public announcement requirements and paid the purchase price in full. This represents approximately 41 percent of the total sales.

Two major categories of farm unit turnover exist—those units for which title has not been conveyed to the purchaser and those where title conveyance has been made.

In the first category, change in ownership occurs through assignment of contract. One hundred and thirty-three, or 15.6 percent, of this group have been assigned to an eligible purchaser. Over 50 percent of these assignments have been made for personal reasons other than financing or inability to bring the unit into a productive state. Approximately 40 percent have requested assignment because of inability to obtain farm development financing or other financial problems and about 10 percent were based on miscellaneous reasons including limited characteristics of the farm unit.

In the second category, where title conveyance had been made, 21 farm units were sold through 1956. Since that date the total has risen to 63. This apparent rapid rise since 1956 was no doubt caused by the relaxed landownership limitations provided by the 1957 amendment to the Columbia Basin Project Act. Under this amendment it became possible for an owner to purchase additional farm units provided the total irrigable acreage does not exceed 160 and 320 irrigable acres in the respective instances of individual and family ownerships. A number of the smaller farm units have been sold under the provisions of this amendment. However, because of the private nature of these transactions no reasons for sale are available.

Under provisions of the Columbia Basin Project Act and the 1953 Exchange Act a total of 19 farm units have been relinquished to the United States and other units selected by the purchaser in lieu thereof.

Land purchase contracts have been canceled on 19 farm units because of default of payments, failure to establish residence or otherwise failure to meet requirements of the public announcement under which the units were purchased. Practically all of these cancellations involved undeveloped farm units. In many cases the cancellation was brought about by lack of desire on the part of the purchaser to fulfill his contractural obligation rather than a lack of inherent potential in the unit itself.

Mr. DOMINY. We will confine it to the Columbia Basin project where we have good examples because we have been settling several hundred thousands of acres of land there.

Mr. CANNON. All of these applicants, when accepted, are beneficiaries. How much do they contribute?

Mr. DOMINY. They have to move onto the farm unit. They agree in advance to help in the formation of an irrigation district if one has not already been formed. They agree in advance, before they are given the unit, to assume their share of the repayment obligation for the district formed covering the lands involved.

Then, of course, they have to meet the annual operation and maintenance charges of the project and arrange for their own financing for leveling of the farm and for building of buildings and acquisition of equipment and fences, et cetera.

This is certainly no gravy train that these boys are given.

What we hope to give them is an opportunity so that if they really want to farm and if they use good management and work hard and diligently they will be able gradually to amortize the cost of developing an expensive farm and have an American standard of living equal to what they would expect in other walks of life.

I certainly do not mean to imply here that in every case they are successful. That would be Utopia to hope for that. Some of them are not successful. Some of them are not cut out to be farmers and some are not good enough managers under today's competitive farm situation to operate a business enterprise which takes from $50,000 to $80,000 in capital.

A family farm today is not the kind of family farm that most of us grew up on 20, 30, 40, 50 years ago. Today that farm has to be capable of supporting an automobile, television, modern plumbing, electrical equipment, send kids to college, and so on, which is all part of the American standard of living. To do that it takes real business management and a very productive farm.

ENGINEERING METHODS AND RESEARCH

Mr. CANNON. I note you are again proposing to make your engineering methods and materials research program nonreimbursable. You are requesting a quarter of a million dollars for that purpose in this budget.

A year ago the Congress specifically declined to consider the program on a nonreimbursable basis. Why do you again come back and make the same request this year after it was denied last year?

Mr. DOMINY. Because, Mr. Chairman, we still feel the request is fair and equitable as compared to the treatment of Reclamation and the Corps of Engineers, for example.

We are in a business of developing water resource projects for the benefit of the Nation. As we have repeatedly pointed out, the great bulk of the money we spend is reimbursable. For an agency that is recognized around the world as being the leader in this field and which has developed talents and experienced people since 1902, we certainly feel a research program carried on under our auspices should give not only to us but to the Nation and to the engineering skills of the world as great or a greater contribution than those achieved by the Corps of Engineers in their research programs dealing with their work. The corps' research program is nonreimbursable. We see no reason in the world why our engineering agency dealing with water and power should not be permitted the same privilege of carrying on valuable materials and methods research as a nonreimbursable measure.

Mr. CANNON. You say because we finance one proposition we should finance another. That is hardly a sound reason.

Mr. DOMINY. I might point out that on the face of it, it does not look like a fair and equitable decision. And while I very seldom question the judgment of this committee, I think in this case it merits additional consideration.

Mr. CANNON. We understand the witness is not infallible.

Mr. DOMINY. That is true, and for that reason this one point disturbs me. The corps being a nonreimbursable program can get nonreimbursable research money, but Reclamation being a reimbursable program cannot get research money except as a reimbursable feature. The argument would in my opinion be more supportable to back up our request.

LOWER HORSE HEAVEN PROJECT, WASH.

Mr. CANNON. Taking up projects individually now, why has the total cost of the Lower Horse Heaven project been increased so drastically, almost double, an increase from $59,000 to $99,000?

Mr. BURNETT. This is an extremely large project, 127,000 acres of potentially irrigable land.

Mr. CANNON. Was that realized in the beginning when you made this $59,000 estimate?

Mr. BURNETT. Yes, but to estimate the initial cost, particularly as it relates to the problems which might be involved in investigating and doing the land classification work, is very difficult.

YAKIMA PROJECT, AHTANUM CREEK DIVISION, WASH.

Mr. CANNON. The Ahtanum Creek division: This was supposed to have been completed in this current fiscal year. There is another remarkable thing. They are never completed in less than the time estimated but in more time. This was supposed to be completed with the amount provided. Why are you asking for more funds in fiscal 1961?

Mr. BURNETT. One of the problems there came about because of the requirement to settle a suit on the availability of the water from that creek for the Indian Reservation which delayed us.

OKLAHOMA BASINS PROJECT, OKLA.

Mr. CANNON. Will you outline briefly the Oklahoma basins project estimated to cost $300,000 as shown on page BR–18?

Mr. BURNETT. Briefly, the State of Oklahoma has a large potential for development in the western part, both mineral resources and lands, and what they lack is water. In the eastern part of Oklahoma there is a large supply of good quality water that is now going out of the State.

The main basis for this investigation is to attempt to evaluate on a reconnaissance basis whether there is any possible way of delivering that water from the eastern part to the western part where it can be utilized to develop those dryland resources.

Mr. CANNON. $300,000 is a rather large amount to be spent for this purpose.

Mr. BURNETT. There are a lot of problems involved in this. There are already existing projects and projects being planned. We have

to look at all of those. There are many and various routes to get water from the east to the west, all of which have to be looked at on a reconnaissance basis. It takes considerable money to cover a state and evaluate all of these potentials.

Mr. CANNON. The State has been so completely and repeatedly mapped and surveyed and its potentialities estimated that I should think you can do that cheaper than if you had just started in from the beginning.

Mr. BURNETT. Of course, we have the topographic maps which saves a lot of money. When you start planning various routes to get water from the East to the West and see all the problems involved it dies take a considerable amount of money to come up with a statewide water plan.

Mr. CANNON. Do you expect to complete it with this $300,000?

Mr. BURNETT. We expect to complete our reconnaissance investigation.

Mr. CANNON. You will not aks for further money on this study?

Mr. BURNETT. Not on this reconnaissance study: If this study shows that there are good potential projects, and the State is interested, we would then come in and ask for funds to investigate specific projects in detail.

Mr. CANNON. Is this largely confined to the State of Oklahoma?

Mr. BURNETT. It is, sir.

Mr. CANNON. How much does the State of Oklahoma contribute to this survey?

Mr. BURNETT. The State of Oklahoma has historically contributed a small amount to the overall Bureau's program. I do not know the exact figure this year. It has been running in the neighborhood of from $3,000 to $5,000 a year.

Mr. CANNON. You do not know how much they will contribute?

Mr. BURNETT. No, sir.

Mr. PALMER. This is the amount estimated for Federal appropriations to do the reconnaissance investigation of the type that Mr. Burnett has referred to.

Taking this on down and refining it to a feasibility assessment then takes in the area that the Commissioner described earlier.

COLUMBIA RIVER BASIN SURVEY

Mr. CANNON. Why is the cost of the Columbia River Basin survey increased from $1,487,000 to $2 million as shown on page BR–20?

Mr. BURNETT. That is one of those unique investigations that carry on for years. We do not know when it will stop. These are coordination activities with various agencies and bringing data up to date. This goes on year after year.

Mr. CANNON. How long is it expected to continue? When will you complete it?

Mr. BURNETT. We are unable to answer that. I do not know how long it will be required.

Mr. CANNON. $2 million for such a study is rather ample provision.

Mr. BURNETT. You understand that there has been one and a quarter million dollars spent now.

Mr. TABER. That is quite a little.

Mr. BURNETT. The reason we raised it so much this year is because we felt we did not want to be coming back to this committee every year with a small increase when we cannot see the end of the job.

With this estimated cost we have programed enough to carry on for a good many years before we have to change it again.

Mr. CANNON. The Corps of Engineers recently completed a review of the Columbia River Basin. How does this study relate to that survey?

Mr. BURNETT. This has a bearing on it because in that particular survey where they examined the main stem of the Columbia we participated in providing them information on the projects we investigated and coordinated with them in putting their report together.

Mr. DOMINY. A number of the specific projects reported on in the Army's 308 report were investigated by the Bureau, and the data were assembled and furnished by us for their report.

CENTRAL VALLEY RIVER BASIN STUDY

Mr. CANNON. Here is another one, the Central Valley River Basin study. You increase your request from $1,438,500 to $1,987,425.

Mr. BURNETT. There are two reasons for this. One of them is the same as on the Columbia River Basin, where we increased it to extend it for a number of years.

The other is that by agreement with the corps we are engaged in evaluating and negotiating contracts on irrigation aspects of projects that are being investigated by the corps. This particular item provides funds for us to examine projects that the corps is investigating which are not yet authorized so that we will have the basic information to supply them regarding the conservation capacities required and the irrigation potential.

STATUS OF REPAYMENT CONTRACTS ON CALIFORNIA PROJECTS

Mr. CANNON. Will you give us the status of your negotiation for repayment contracts on the Black Butte and New Hogan Dams?

BLACK BUTTE AND NEW HOGAN DAMS

Mr. PALMER. These two projects were authorized for the corps to construct with the Bureau of Reclamation developing the conservation contracts on those two units.

Yesterday, we received advice from the State of California that it is in complete agreement on forms of contract under which the State would serve as a guarantor for the conservation values to underwrite and comply with the full instructions of the Congress that contracts are on hand to assure the repayment of the conservation allocation.

Under these agreements, which are new and unique, the Bureau of Reclamation would continue to negotiate conservation contracts with local water user's organizations which would have the net effect of setting aside the State obligation under these guarantee contracts.

The State contracts underwrite approximately $13.8 million under these two jobs until individual water user organization contracts are written by the Bureau of Reclamation. When individual water user groups contract the State liability will be reduced by whatever the corresponding amount might be.

Therefore, as far as Black Butte and New Hogan are concerned, we have completed the water market analysis, or will have it completed by the end of 1960. We have completed drafts of contractual arrangements with the State and by the end of this year will have actually started writing individual contracts with the individual irrigation districts or municipalities under those contracts.

TERMINUS DAM

Mr. DOMINY. In the case of the Terminus Dam on the Kaweah River we think there is a fair nucleus of interest and we have invited local interests now to participate in negotiations.

There is, however, a long way between agreeing to the share that the various parties will have in the project benefits.

For that reason we have no assurance that the repayment contract can move quickly into a final agreement.

We would hesitate to say that the contract can be executed in fiscal 1961. We will make every effort to continue on that basis. We cannot assure you that that can be done.

SUCCESS DAM

In the case of the Success Dam on the Tule River, a meeting has been held with local interests to explain construction and operating costs involved and to explain steps to be taken by local interests in arranging for repayment coverage.

It is understood that local interests may be in a position to start negotiations by May of this year, but again it is extremely doubtful that the contract provisions can be negotiated and the execution actually completed before the end of the fiscal year.

NEW MELONES DAM, CALIF.

Mr. CANNON. You mentioned in the beginning New Melones. What about that project?

Mr. PALMER. New Melones is a project now authorized for construction by the Corps of Engineers. Bills have been introduced in both the House and Senate for Bureau construction. These bills having a little broader concept providing greater benefits not now in the corps' plan and a few other things.

Mr. CANNON. Have those bills passed?

Mr. PALMER. No, they are before the Congress. So far as I am aware no hearings have been scheduled.

We have included in this year's plan with the East Side money to go ahead with the water marketing analysis and to proceed with the study of contracting entities which would be involved in the New Melones market area.

Mr. CANNON. Why do you proceed when the bills have not been passed and may not be passed?

Mr. PALMER. This is the question I was coming to.

Under the present authorization, with Corps construction there would be the same requirement to market the water from the New Melones development as is the case in New Hogan and Black Butte, where the Bureau of Reclamation would write the conservation contracts with the Corps being the construction agency.

Two questions arise. One has to do with the size of the dam. The second is the capacity of the reservoir.

New Melones would be a key structure in the East Side system, the East Side Canal system, whether it is built by the Corps or the Bureau.

I believe the Commissioner has additional comment on that point.

However, the conservation space itself in either construction program, either under Corps construction or Bureau construction, would be handled by the Bureau of Reclamation.

TEXAS BASINS PROJECT

Mr. CANNON. The total cost of the Texas basins project on page 47 is $5,484,855. Is that the same project you referred to last year as the gulf basins project estimated to cost $4,156,725?

Mr. BURNETT. Yes, sir, that covers the same area. The project we are investigating has been expanded. It will include far more feasibility investigations.

Mr. CANNON. It is the same project under another name?

Mr. BURNETT. It is the same area, yes, sir. It is practically the same project.

Mr. CANNON. Why not continue it under the same name?

Mr. BURNETT. Because we did not think that the name Gulf Basins was appropriate for this project because it extends far up from the gulf. It does not just consider lands along the gulf. We take into account all of the potential upstream developments. Some people in Texas thought we were discriminating when we said it was a gulf basins project and thought we should give it a name which would indicate it covered a lot more of the State than just the gulf area itself.

Mr. CANNON. And that took more money, of course?

Mr. BURNETT. Yes, sir.

TEXAS STUDY COMMISSION

Mr. CANNON. We have had experience with a number of these State commissions.

Here we have this project in which we are to cooperate with the Texas Study Commission. When we established these commissions we provided that all work done in that connection should be reimbursed by the Commission.

Yet you tell us here in the justification that the Bureau of Reclamation report has been delayed until fiscal year 1963 and additional funds are scheduled for cooperation with the Commission and to coordinate the Bureau's plans with those of the Commission. You say nothing about any reimbursement from the State commission, however.

Mr. BURNETT. The Texas Study Commission, which is a Federal agency rather than a State agency, obtains an appropriation from the Federal Government to do their work. They have given us money to do certain things in connection with their study, but basically that Study Commission is set up as a review and coordinating agency. They expect to utilize the information we develop through our own programs for their experts to put together into their plan. While we do get some money from them it is a very minor amount.

In this fiscal year, for example, we got some $81,000.

Mr. CANNON. It is very apparent that you are sidestepping your responsibility from the understanding we had to the effect that any additional expense in connection with our collaboration with the Study Commission would be paid out of their funds. We naturally would expect you to do the same thing here.

In other words, we are paying for it twice. We have already provided the money and now you want us to pay for it again.

Mr. DOMINY. As we understand it, Mr. Chairman, the money that the Texas Study Commission has requested from Congress in fiscal 1961, of the total amount which they have sought, they have earmarked about $130,000 for work that they would expect the Bureau of Reclamation to perform for them.

You will see that this program is a sharp decrease from what we had in fiscal 1960 as compared to what is budgeted here in fiscal 1961.

It was our understanding that it was not the desire of the Budget Bureau to circumvent our program or reduce the amount available to us in toto in fiscal 1961 as compared to 1960. And we certainly had the impression that the Texas Study Commission budget would be increased to the amount that ours was decreased so we would be financed from them rather than from this appropriation here so as to produce approximately the same financing in fiscal year 1961 as in fiscal year 1960.

I am told by Mr. Burnett and Mr. Palmer now that with only $130,000 being programed in the Texas Study Commission we are left approximately $200,000 less in fiscal 1961 than we had available to us in the current fiscal year. If that is the case, and this is the way the budget finally is enacted both for the Texas Study Commission and for us, we will then have to reduce our staff and curtail the work quite severely in fiscal 1961.

Mr. CANNON. The committee had a very clear and definite idea here. It was our expectation, and we still expect, that this work will be done with the Commission's money.

We have added $500,000 for the Commission. We would like to know how much of this $458,000 which you have here for fiscal year 1961 is for that purpose and how much of it we can take out of the Commission's appropriation.

Mr. DOMINY. Well, as I mentioned a moment ago, the $458,000 which is budgeted here for us, together with $130,000 which we understand is to be advanced to us for work connected with the Study Commission, still leaves us with a budget of approximately $200,000 less in fiscal 1961 than we have now in fiscal 1960. Therefore, we will not be able to carry on the work as originally programed and as scheduled out over a period of years.

Mr. CANNON. We understand that. However, we would like to know how much of this $458,000 for the fiscal year 1961 is for Commission work and how much of it we can take out on that account.

Mr. PALMER. Mr. Chairman, the $458,000, or anything shown under this item in the Bureau's budget, is for Bureau work. It is not for Texas Basin Commission work.

GREATER WENATCHEE PROJECT, WASH.

Mr. MAGNUSON. Turning to the Greater Wenatchee project, I will read the last two sentences of the commentary:

> Funds for start of construction were provided in the 1960 Public Works Appropriation Act as approved September 10, 1959. The general investigations fund for fiscal year 1960 were used pending the availability of the construction allotment.

What does that mean?

Mr. DOMINY. That means, Mr. Magnuson, that on July 1, at the start of fiscal 1960, we still did not have our appropriation bill, so we had a staff there and we had obligations continuing, and under the joint resolutions which Congress passed which let us continue in business we could continue to spend planning money because we had some there in the prior year.

Mr. MAGNUSON. You did begin to use construction money as soon as it became available?

Mr. DOMINY. That is right. This was to explain that.

SPOKANE VALLEY PROJECT

Mr. MAGNUSON. Mr. Dominy, you mentioned the Spokane Valley project.

Mr. DOMINY. Yes, sir.

The Spokane Valley is that area east of Spokane which embraces about seven irrigation districts which have been irrigating for years, and the plan would involve rehabilitation of their system and augment their water supply in an overall project plan.

We have run into some troubles, frankly. As I understand it, probably two of the districts will not want to be included. I refer to two small areas. It will necessitate revamping the plan and reanalyzing it from an engineering and economic point of view and will undoubtedly require additional consideration by Congress because it will change the authorization.

Mr. MAGNUSON. How do you plan to augment the water? Is it with wells?

Mr. BENNETT. Under the Spokane Valley project plan the present diversion from the Spokane River would be abandoned and there would be substituted ground water pumping.

Mr. MAGNUSON. You believe you will need additional authorization because the cost will be reduced with the revamped plan?

Mr. PALMER. Yes. With two of the districts dropping out the cost will be reduced. The amount to be repaid will be reduced because the amount repayable, the capacity of the remaining water users to pay, is reduced. The cost of the project is reduced and the amount to be repaid is reduced, and the percentage of support will be increased because you have a shift in the land that is going out which is a more heavily urbanized portion of the district. The agricultural lands are pretty well in.

Based on the very hurried reassessment that is being done we will probably end up with a completely justifiable and perhaps a more desirable project with these two districts out than with them in.

The reason the legislative addition is required is because of language in the original authorization which states the dollar amount to be repaid. Now, the urban area is going out.

Mr. MAGNUSON. That amount would be reduced?

Mr. PALMER. Yes.

STATE BREAKDOWN OF GENERAL INVESTIGATIONS

Mr. MAGNUSON. Please insert in the record a breakdown showing the amount of general investigations funds which are going into each State.

Mr. DOMINY. In order for that to be meaningful I think we had better take the money for the Missouri Basin project which is going into investigations and also the money from other special funds such as Colorado River and the Boulder Canyon funds to the extent they are being used for exactly the same category of work.

Mr. MAGNUSON. Yes.

Mr. DOMINY. Then you would have a reasonable comparison.

Mr. MAGNUSON. Please include that.

(The information requested follows:)

Breakdown of fiscal year 1961 appropriation request for the planning activities

	General investigations	C&R advance planning	Colorado River advance planning	MRB investigations	MRB advance planning	Total
Alaska	$250,000					$250,000
Arizona	77,000					77,000
California	1,043,000	$49,000				1,092,000
Colorado	802,000	5,000	$141,000	$15,500	$49,000	1,012,500
Idaho	492,000					492,000
Kansas				11,500	131,600	143,100
Montana	50,000			123,000	334,000	507,000
Nebraska				151,000	255,000	406,000
Nevada	69,000	100,000				169,000
New Mexico	159,000					159,000
North Dakota				12,000	445,400	457,400
Oklahoma	125,000					125,000
Oregon	403,000					403,000
South Dakota				201,000	129,000	330,000
Texas	512,000					512,000
Utah	142,000		561,000			703,000
Washington	278,000	100,000				378,000
Wyoming	9,000		236,000	142,000		387,000
Other	[1] 39,000					39,000
Total, Bureau of Reclamation	[2] 4,450,000	254,000	938,000	656,000	1,344,000	7,642,000
Transfers to Fish and Wildlife Service	200,000					200,000
Total	4,650,000	254,000	938,000	656,000	1,344,000	7,842,000

[1] This represents funds for printing of reports ordered by Congress to be printed by the Government Printing Office and for hydrologic studies being made in cooperation with other Federal agencies.

[2] Does not include anticipated contributions by local interests.

Mr. MAGNUSON. Off the record.

(Discussion held off the record.)

COST OF INVESTIGATION PROGRAM

Mr. TABER. As far as I can see you have investigation projects totaling $80,688,323 and the balance to complete is something like $40,677,955.

I understood you to tell us a while back that there were 13 projects which have been planned.

Mr. DOMINY. What I was referring to at that time in the record was to those projects already planned to a feasibility grade investigation and which had already been authorized or which had been presented to Congress with a recommendation of the administration for authorization following the completion of the planning. That was the list that you referred to.

Mr. TABER. It seems peculiar that we would be having 100 projects under investigations when we have as many projects as that authorized or pending authorization.

Unless we are going into the reclamation business on a very elaborate scale I cannot see much sense to this investigation work. We have to be prepared to go in clear over our heads.

Mr. DOMINY. Well, this investigation process is the process to be followed if we are to continue to expand the economic potential of the arid and semiarid West.

Mr. TABER. What percentage of these investigations turn up with an actual reclamation project? Is it 20 percent?

Mr. DOMINY. Certainly when we get into the feasibility grade level it is a very high percentage.

At the level where we try to eliminate the projects it is in the reconnaissance grade level of investigations, and that is where we try to analyze their potential to see whether it is justified to go into a more detailed examination, so I would be disappointed in our investigation efforts if a good many projects on which we do reconnaissance work are not determined to be infeasible at that point of time and no further expense is put into them.

However, when we go into the feasibility grade investigation I would likewise be disappointed if we did not find most projects to be feasible, because our judgment would be faulty if in the reconnaissance we have not eliminated most of the infeasible projects.

We can give you a statement of the general investigation expenditures up to the current time and the amount that has been assigned to projects that did not go into construction, which would give you a very good idea of how much of our general investigation money up to this point had been spent on projects which turned out to be infeasible.

(The information referred to follows:)

General investigations expenditures

The total expenditures to December 31, 1959 from the "General investigations" appropriations amount to $70,560,000, exclusive of $10,800,000 expended from the nonreimbursable Colorado River development fund. These expenditures have been assigned to projects or studies as follows:

Transferred to nonreimbursable expense:	
(*a*) Investigations of a general nature	$5,100,000
(*b*) Investigations pertaining to specific projects found infeasible or abandoned	3,060,000
Subtotal	[1] 8,160,000
Transferred to "Construction costs" of projects	13,300,000
Project investigations, basin surveys and general studies underway and projects temporarily deferred	49,100,000
Total	70,560,000

[1] Transfer to nonreimbursable expense classification in accordance with the Secretary's authority in the Reclamation Act of June 17, 1902, and subsec. O of the Fact Finders Act of Dec. 5, 1924, and as amended in the act of Apr. 19, 1945.

Mr. TABER. You have had very large expenditures in the Dakotas.

Mr. DOMINY. We are still working on the Oahe project which is the major project in South Dakota. We eliminated one fairly sizable area of that proposed project as being unsuited to irrigation, and have shifted our efforts to another part of the valley which shows more promise.

Mr. TABER. How much money do you have for that this year?

Mr. DOMINY. That is in the MRB item.

Mr. TABER. We have not reached that as yet?

Mr. DOMINY. No, sir. That will come up under the Missouri River Basin heading, Mr. Taber.

Mr. TABER. You show a total of $26 million for investigations to be initiated or resumed after fiscal year 1961.

Mr. PALMER. In the general planning figures only, Mr. Taber, of the total planning programs involved, there are 115 individual items in the investigation program for 1961.

That compares to 139 investigations which were in process in 1960, and with 150 individual investigations which were in process in 1959.

In terms of actual accomplishment there was $8,492,000 and this is from all sources of money in 1959. That dropped to $8,136,000 estimated available this year, and $7,842,000 requested for 1961, so you see this is a gradually reducing program both in terms of items of work undertaken and in terms of total dollar cost involved.

We believe this is a rockbottom program if we are going to carry out the planning program on an orderly basis.

You asked a moment ago about the Oahe project. Just offhand I can tell you that the only money in fiscal year 1961 is to complete the report. As I recall, it is $20,000.

Mr. TABER. That is all I have.

TEXAS BASINS PROJECT

Mr. PILLION. On the Texas basins project, gentlemen, page 47, I did not quite understand the explanation for the change of name from the gulf basins project to the Texas basins project.

Is not gulf basins project a more inclusive term than Texas basins project? The gulf takes in Texas along with other States; does it not?

Mr. BURNETT. That is right. The gulf basins presumably could go way over to Florida.

Mr. PILLION. That is right.

Mr. BURNETT. "Gulf" implies it is all down along the gulf coast while our investigation actually is confined to Texas.

The project investigation, however, extends way up into the center of Texas.

Mr. PILLION. That is still part of the gulf basin; is it not?

Mr. BURNETT. It is still in the area of the rivers which run into the gulf basin; yes, sir.

Mr. PILLION. Last year's report, page 87, referring to the same project, under the old name, gulf basins project, shows that your request for fiscal year 1960 was $611,000, leaving a balance of $43,000 for completion, so that at that time the committee was given to understand, and the language is specific here, you would require a total of $653,000 for completion.

Instead of receiving $611,000 in that year you received $667,000, which is about $10,000 or $15,000 more than the justification said would be needed to complete this project.

Yet we come up here this year asking for $458,000 additional and $1,011,000 to complete. In other words, how do you explain that in one year you say you need $650,000-plus to complete a project and then next year we find ourselves in a position where we are asked to appropriate an additional $1½ million to complete a project which just a few months ago we were told would be completed?

Mr. DOMINY. I would like to go into that in some detail. The increase here is primarily due to the creation of the U.S. Study Commission by Public Law 85–843, which has expanded the Texas basin project from that which was originally conceived, and which we were reporting on here previously, as a water supply plan of the Bureau of Reclamation to one of a much broader scope encompassing all aspects of land and water resources within the basin.

This has necessitated much closer cooperation with State and other Federal agencies and has occasioned considerable additional work to insure that the Bureau's plan is completely compatible with the plan of the other agency.

The Commission's report is scheduled to be completed in July of 1961, and this necessitates deferring completion of the Bureau's report which was of a reconnaissance nature from fiscal 1961 until after the Commission's report has been completed. That is to insure that the Bureau's plan will be in complete harmony with the overall plan finally adopted, and this has resulted in changing the goals of the Bureau's investigation. The present plan, with this increased cost, is that the Commission's report will present the overall plan for approval, and the Bureau's program has been expanded to accomplish the next step; namely, the detailed investigations to support authorization of the initial features.

In other words, this expansion gets us over into actual feasibility studies which were not contemplated originally, and that accounts primarily for the increased cost.

Additional studies have been found necessary to determine the irrigability of some 500,000 acres of fine-textured lands in the Baffin Bay area which also added significantly to those costs.

Mr. PILLION. There must be either more detailed work to be produced or——

Mr. DOMINY. That is correct.

Mr. PILLION. You say you have an expanded program. I would like to read you this language of last year:

> The scheduled investigations are intended to provide for the fiscal year 1961 an overall plan for optimum utilization of the water of the Texas gulf coastal streams for irrigation, municipal and industrial water supply and other beneficial uses and recommendations for immediate authorization for units of the overall plan most urgently needed.

You said you would supply information for an immediate authorization. Does that include feasibility?

Mr. DOMINY. Yes, normally that would include feasibility. Mr. Burnett is very familiar with the details of this.

Mr. BURNETT. The basis for that estimate was that we originally contemplated we would come up with feasibility grade data on two or three of the primary regulatory reservoirs which would be required

for the ultimate plan but for which there was an immediate need for water.

This Texas basin plan envisions a canal bringing water from the Sabine all the way down to the lower Rio Grande, so our program now provides for feasibility grade investigations on the main canal, and several regulation reservoirs. This tremendous canal, which is about 400 miles long having a capacity up to about 9,000 second-feet, has some real problems involved in crossing the intervening rivers.

So it is an engineering problem which takes a lot of money to work out. Because of the urgent requirement for some local water use now, we have separated out three of the regulation structures and are coming up with separate reports on those so we can take care of the immediate requirements.

Mr. PILLION. Thank you.

Mr. MAGNUSON. Will the gentleman yield?

With regard to the Texas basin, taking up what Mr. Pillion said your estimate for the current year was $611,000. How much did you get?

Mr. DOMINY. The appropriation for 1960 for this item was $597,600 which, with carryover funds of $70,043, provides $667,643.

Mr. MAGNUSON. It was estimated you would need $48,400 in fiscal 1961 to complete it. Right?

Mr. DOMINY. Yes, sir.

Mr. MAGNUSON. With the money you have, could you complete your own report as far as your own responsibility is concerned?

Mr. DOMINY. Our responsibilities have been increased. That is what we have been pointing out.

Mr. MAGNUSON. That was not the purpose of establishing the Commission, as I understand you. Now you are estimating an additional $1.5 million.

Mr. DOMINY. To bring a broader plan up to feasibility grade level, yes, sir.

Mr. MAGNUSON. If the Commission is making these demands on you or imposing this additional work on you, it seems to me that the Commission should reimburse you for the additional expense instead of your getting the appropriation direct.

Mr. DOMINY. I do not want to leave the impression that the Commission is directly placing this extra burden of expansion of our work. They have already gone far enough in their overall consideration of the Texas proposals to have indicated that it is desirable to complete this work we have outlined here to a feasibility grade, which is something the Texas Study Commission would not be doing in any event, because they are merely making a broad reconnaissance of water resource potential as a tabulation and format of the Texas water resource potential as a whole, and would not go into these feasibility grade investigations in any event. This would still be the work of the agencies, such as the Corps and the Bureau and the Department of Agriculture, which have participated in this work generally.

As I understand, the study commission is not going to get into the field of any of the operating Federal agencies or State agencies. They are merely a focal point to get all of the potential into one State list of projects so everyone can see what Texas' future holds in terms of water potential.

Mr. MAGNUSON. Did I not understand that since last year you have enlarged the area which you are investigating?

Mr. DOMINY. That is right, to a feasibility grade level. We have decided to expand the elements of our Texas basin project to a feasibility grade level above what we had indicated a year ago, yes.

Mr. MAGNUSON. I am not suggesting you do not have—but do you have authority for that?

Mr. DOMINY. There is no question about our authority to do it. The question solely rests with the Appropriations Committee as to making funds available to do it.

Mr. BENNETT. I think perhaps an additional word might help to clear up the situation.

In basic concept, this is the same project we have been investigating. As time has gone on and as we have had more and more data, the particular problems have become more obvious to us. The need to solve those problems on a one-by-one basis rather than a total basis has shown up.

You will notice in the justification the proposal to come in with a report on feasibility grade on the Hochheim site with the Falls City unit as a side report. We already have in our office a report on the Columbus Bend unit. Some of those items which we originally had not contemplated going to feasibility grade we now think must be brought to feasibility grade.

The work which we are doing for the commission actually is over and above the program which is shown here. It is work which the commission requests and which we then do for them. But we still do our own work, which is being complemented by the work of the commission.

As we see it today, the Commission, so far as our own program is concerned, serves a very vital function. It serves as a place where there can be brought together the thinking of the other Federal agencies and of the various State agencies concerned, so everybody is in one room and of one mind on these items. I think that is the big thing which the Commission itself does.

Out of their efforts will come, under the act which established the Commission, a report setting forth in general terms how the Texas water resources should be developed. The act specifies that the Commission shall also designate the agency which ought to carry on that work. So the work has gone far enough that the work to be done by the Bureau of Reclamation under that proposal is very clear.

All we are doing here is continuing that work out to a feasibility grade rather than only partly to feasibility grade.

Mr. MAGNUSON. I shall read a sentence from the justifications.

> The Bureau of Reclamation's Texas Basin project report therefore has been delayed until fiscal year 1963 and additional funds scheduled for cooperation with the Study Commission and to coordinate the Bureau's plans with those of the Commission.

This certainly suggests the activities of the Commission are generating work and costs for the Bureau, does it not?

Mr. BENNETT. That is correct. It is doing that. They are to advance us funds for that purpose. They gave us some $80,000 this year, and are scheduled to give us $130,000 in fiscal 1961.

Mr. MAGNUSON. Meantime, you ask for an additional million and a half in your own appropriation.

Mr. BENNETT. That is correct, to carry our own work to a higher degree of study, more detailed.

Mr. MAGNUSON. Mr. Pillion.

FRYINGPAN-ARKANSAS PROJECT, COLO.

Mr. PILLION. The Fryingpan-Arkansas project on page 48. That project has been turned down year after year by the committees of Congress, and it was disapproved by the House recently. You have already spent $980,000 on it. What is the objective of the Bureau in continuing this study? What are you trying to do now?

Mr. DOMINY. What we have done in fiscal 1960, Congressman Pillion, with $31,000 advanced by the State of Colorado and with the $40,880 in our fiscal 1960 program, is to complete the review of the project to replace the Aspen site on the western slope—which was the focal point of the reason for the opposition on the western slope of Colorado—by the Ruedi Reservoir. This is an alternate to the Aspen and has already satisfied the conflict between the two slopes. So the State approach now is unanimity to get the project considered in this session of Congress.

Our report on the Ruedi, which is a replacement of the Aspen site, is now with the Bureau of the Budget. It is anticipated that the matter will be heard again by the House Interior and Insular Affairs Committee at this session. The only purpose of this request of $27,390 in fiscal 1961 is to provide continuing funds required for us to cooperate with Congress and the local people in the final determination of whether this project is to be built and authorized or not.

We do not have any additional planning.

Mr. PILLION. Does this project no longer take water from the west of the Continental Divide and bring it over to the east?

Mr. DOMINY. Yes, sir, it does take water from the west and bring it to the east, but it does it now in a manner and with certain guarantees by reason of the extra capacity to be provided in Ruedi, so the western slope no longer feels that it is being deprived of its own development in that reach of the river.

Mr. PILLION. Will it cost any less than the last project we had? What did that run—$78 million or $80 million?

Mr. PALMER. The cost will be slightly higher, because the Ruedi Dam and Reservoir is a higher cost feature. The cost estimates are based on prices a few years later in terms of timing, and increased costs are involved. The benefits derived from the Ruedi site, however, are much greater than those obtainable from the Aspen site, and do have the added advantage that the Commissioner has mentioned, of providing an equitable basis of solution of the differences between the east and west slopes on the diversion and division of the waters.

Mr. PILLION. If the report is completed, I do not understand why you need $27,000 to continue your efforts and your work after the report is completed.

Mr. DOMINY. That is our estimate of what it will take to service the kind of investigation that Congress will go into as it studies this authorization. It is based on our experience in the several years that you mentioned a while ago.

RED PRAIRIE PROJECT, OREGON

Mr. PILLION. On page 27, the Red Prairie project, I notice that the total estimated cost there is $261,000 to develop 10,000 acres, a study cost of $26 per acre. Is this a reconnaissance or feasibility study, or what type of study is this?

Mr. BURNETT. This is a feasibility study.

Mr. PILLION. It is an awful lot of money, is it not, $26 per acre, to study the feasibility of 20 or 30 farms, whatever it might be, 10,000 acres? What is so complicated about an area of 10,000 acres, which is roughly 15 square miles?

Mr. PALMER. This is a very lovely area in the Willamette Basin. It involves some relatively complex water delivery systems and will require fairly high-cost planning to bring it to the feasibility grade.

Mr. BURNETT. In addition, we have to study a multipurpose-storage reservoir with significant flood-control benefits including drilling the site. It runs into money when you start investigating for a dam.

I wish somebody could figure out how to hold these costs down, myself. With the short workweek and higher salaries——

Mr. PILLION. And many projects.

SAN FELIPE DIVISION, CALIF.

Page 36, please, gentlemen, the San Felipe division. In the justifications that is said to be a cost-sharing justification between the United States and the Santa Clara-Alameda-San Benito Water Authority. Are they paying their share of this investigation?

Mr. PALMER. Yes, sir, they are, and additional to this they have recently memorialized us to speed up the study, bringing it to an earlier conclusion than had been projected, and with their money. They are not only willing to do what they originally contracted to do, but are willing to go further.

Mr. PILLION. Are they paying half of it?

Mr. BURNETT. Yes, sir.

Mr. PILLION. How? By reimbursement? What is the cost of this, $400,000 or $800,000?

Mr. BURNETT. $400,000. These figures include their contribution. They are paying half of the $400,000. They will give us $85,000 in 1961.

FOREIGN CURRENCY RESEARCH

Mr. PILLION. Now on page 54, gentlemen. I note on item No. 2, "Foreign currency research"—necessary support in U.S. dollars, $100,000. The big item of foreign currency is still in the other one, gentlemen. This is still under general investigations.

Is this to be added to the $4,975,000, or thereabouts, of the new foreign currency program, listed on page BR–65?

Mr. DOMINY. Yes, sir, this would be the amount of money required domestically to service the program if we went into it. Those credits cannot be spent in this country. This item would be our estimate of what would be required at the Denver office primarily in connection with the management of this overall proposal.

Mr. PILLION. Why is it not put in the other program? You put your administration and travel in the other item. Why do you split it?

Mr. GOLZÉ. Mr. Pillion, the other program is for currencies overseas not available for expenditure in this country. So to service that program in this country, provision had to be made in the general investigations program. The $50,000 should be added to the $38,000 shown on page BR–66, to give a total of $88,000 for fiscal year 1961.

Mr. PILLION. That is right. Why do you split it? Why do you not put it in one program, administrative and travel? Should that not be under that special currency program?

Mr. GOLZÉ. The foreign currency cannot be used in the United States. Fifty thousand dollars of the general investigations appropriations is what we estimate we will use in the United States.

Mr. DOMINY. The $38,000 will be used overseas.

Mr. GOLZÉ. That amount is for administration and travel overseas.

Mr. PILLION. Then that particular project actually will run you $5,057,000.

Mr. DOMINY. That is correct.

Mr. PALMER. Of which $100,000 is in United States domestic dollars and costs.

Mr. GOLZÉ. Over a 3-year period.

Mr. PILLION. No, each year. You want $50,000 for 1961.

Mr. GOLZÉ. $50,000 for 1961, and $25,000 for each of 2 succeeding years.

Mr. PILLION. I think that will be all the questions.

I have a number of questions for the record, if I may.

(The questions referred to follow:)

Mr. PILLION. The Chakachamna project is a new study. Can you tell us something about it?

Mr. DOMINY. Yes, sir. This project is located on the north side of Cook Inlet about 80 miles west of the city of Anchorage. It will involve a tunnel to divert water from Chakachamna Lake, a penstock and a powerplant of about 200,000-kilowatt installed generating capacity. The feasibility report is scheduled to be completed in fiscal year 1963.

Mr. PILLION. To what do you refer when you speak of "the value of this project as an alternate source of low-cost power to serve commercial and industrial needs"?

Mr. DOMINY. Our studies in connection with the Devil Canyon project indicate that by 1980 the entire power output of the Devil Canyon Powerplant probably will be absorbed within the Railbelt area even if there is no significant industrial expansion. If the relatively low-cost power from Devil Canyon project leads to industrialization as we fully expect it will, the Devil Canyon power will be absorbed much sooner. We are proposing to undertake in fiscal year 1961, feasibility studies of the Chakachamna project located near Anchorage at the southern end of the Railbelt area and the Vee project which is located on the Susitna River in the geographical heart of the Railbelt area. These two developments are alternates in the sense of their being the second step in meeting the power requirements of this area.

Mr. PILLION. What do you call "low-cost power" in this area? Last year you told us that you considered anything under 10 mills per kilowatt-hour as "very low"——

Mr. DOMINY. We still consider anything under 10 mills to be low-cost power. In the Railbelt area diesel generation costs from 23 to 25 mills per kilowatt-hour and steam generation from 18 to 20 mills per killowatt-hour.

Mr. PILLION. You have spent some $650,000 on investigations for the Devil Canyon project. What have been the results and why are no funds requested for fiscal year 1961, even though the balance to complete after fiscal year 1961 is shown to be $65,295?

Mr. DOMINY. This project will consist of two elements: the Devil Canyon Dam and Powerplant which will be primarily a run-of-the-river power development on the Susitna River and the upstream Denali Dam and Powerplant, which will provide about 95,000 kilowatts of generating capacity as well as storage capacity to increase the output of the Devil Canyon Powerplant.

The report we are now completing this fiscal year on this project is based on stage construction with only the Devil Canyon Dam and Powerplant proposed for construction at this time. As a result, the report will be to feasibility grade for the Devil Canyon Dam and Powerplant and to reconnaissance grade for the Denali development. No additional funds will be required in fiscal year 1961 for this phase of the study. The $65,295 shown in the "Balance to complete"

will provide for bringing the data on the Denali development to feasibility grade if and when that proves desirable.

Mr. PILLION. Apparently you expect to complete the investigations on the Snettisham project with the $22,000 requested for fiscal year 1961. You speak of low-cost power from this project. What is the estimated cost per kilowatt-hour for the power from this project?

Mr. DOMINY. The Snettisham project consists of two divisions; namely, the Long Lake-Crater Lake division and the Speel River division. The feasibility report on the Long Lake-Crater Lake division has been completed and we are processing it for submission to the Congress. That report indicates the power from the Long Lake-Crater Lake division will cost 6.1 mills per kilowatt-hour. The studies of the Speel River division are being initiated this fiscal year and until those studies have been completed we will not know the cost of the power.

Mr. PILLION. What installed capacity in kilowatts is proposed for the Snettisham project? What is the present peak power demand in the area and what is the present power supply of the area?

Mr. DOMINY. The Long Lake-Crater Lake division will have an installed generating capacity of 48,000 kilowatts and we are tentatively planning on 52,000 kilowatts of installed generating capacity for the Speel River division.

In regard to peak power demands, the only utility serving the Juneau area is the Alaska Electric Light & Power Co. The latest information we have indicates the peak power demands of the company were 5,105 kilowatts in 1958. There also are a number of private powerplants in the area that are serving mining and lumbering operations. The peak power requirements of these private plants were 2,100 kilowatts in 1955.

The firm generating capacity in the Juneau area at the present time is 9,700 kilowatts, including the private plants.

Mr. PILLION. It is understood that the Federal Power Commission recently has made a power-market study of the various areas of Alaska, which show existing and scheduled powerplant capacity and existing and estimated future power requirements of each area of Alaska. Has this study been made available to you?

Mr. DOMINY. No sir.

Mr. PILLION. I have a summary sheet of the power estimates which shows that the present total peak power requirements on the utility systems of Alaska, both private and public, totaled 67,467 kilowatts in 1957; that the estimate for 1970 runs from a minimum estimate of 147,908 kilowatts to a maximum estimate of 213,515 kilowatts, and for 1980 it ranges from a low of 237,808 kilowatts to a high of 403,110 kilowatts.

Would you like to comment on what hydroelectric projects would appear more desirable to develop in order to meet the growth in power needs in Alaska?

A development of a 4 or 5 million kilowatt power project at Rampart Canyon has been suggested. This project would produce 10 times the peak requirements now estimated by the Federal Power Commission for all of Alaska as of 1980. Would it be more logical to develop some of these smaller projects that are more in keeping with the growth in power needs of the various areas of Alaska, rather than to spend the money and effort on the development of a superproject that may not be needed for 30 or 40 years?

Mr. DOMINY. Based on the result of our studies in Alaska, there is little doubt in our minds that the economic development of the State is dependent to a great extent on the availability of low-cost hydroelectric power. How rapidly the demand for power will develop or the pattern it will follow is very difficult to predict at this time. With an abundance of attractive sites of all sizes scattered throughout the State, however, we are convinced it would be much better to concentrate on the smaller developments for the time being. These smaller developments have the distinct advantage that they can be constructed individually to meet the power demands as they develop. They also have the advantage that sites can be selected near the power-market areas, thereby avoiding the necessity for long and expensive transmission systems.

That is the basis for our Alaskan investigation program now before you. In the railbelt area, one of the fastest growing regions in Alaska, we are proposing the Devil Canyon project as the first step in meeting the local power demands, and we hope to complete the feasibility studies on that development by the end of this fiscal year. After the output of the Devil Canyon project has been absorbed, the next logical step appears to be the Vee project which we are proposing to study beginning in fiscal year 1961. In the Anchorage-Kenai Peninsula area, the Chakachamna project will be the first step in meeting the local needs. In the Juneau area, the Long Lake-Crater Lake division of the Snettisham project

will take care of the immediate local needs and the Speel River division, which we will continue studying in fiscal year 1961, can be developed when the power demands exceed the capabilities of the Long Lake-Crater Lake division.

Our preliminary studies indicated the Ramparts project is a very attractive development in terms of low-cost hydroelectric power. A dam about 290 feet high and about 2,500 feet long would create a reservoir of approximately 130 million acre-feet capacity. With a powerplant of 2 million kilowatts of installed capacity it would be possible to generate some 13 billion kilowatt-hours annually. The difficulty is that the project is located on the Yukon River some 100 miles northwest of Fairbanks and the foreseeable powerload growth in this area would absorb only a small percentage of the project capability. It appears that the only opportunity for using such a large block of power would be in connection with the exploitation and refining of minerals and this probably is a long time in the future. Nor does the site appear to lend itself to stage construction inasmuch as the costly dam and enormous reservoir would be required even if only one or two generators were installed initially. For these reasons we temporarily deferred any further investigation of the project in favor of the smaller developments, with the idea that we would study it in more detail when the industrialization of Alaska had reached a stage where such large blocks of power could be absorbed.

Mr. PILLION. Apparently the funds provided for the Devil Canyon for fiscal year 1960 will just about complete the investigations of that project.

According to the FPC estimates of power requirements for Alaska, the Devil Canyon project, for which you indicate an ultimate capacity of 450,000 kilowatts, would provide for the estimated maximum load growth through or beyond 1980.

Under these circumstances there appears to be no need for investigation of the Vee project at this time. Do you want to comment on this?

Mr. DOMINY. Yes, sir. As I indicated we have not received a copy of the FPC report. Our studies in connection with the Devil Canyon project, however, indicate the annual power requirement for the railbelt area increased from 201 million kilowatt-hours in 1955 to 254 million kilowatt-hours in 1958. On the basis of this past growth and without any consideration of the possibility of industrial expansion to utilize the natural resources, it is conservatively estimated the annual power needs of this area will reach 600 million kilowatt-hours by 1970 and 1,500 million kilowatt-hours by 1980. On this basis, it appears the entire output of the Devil Canyon powerplant will be fully absorbed by 1980. If this power acts as a catalyst for industrial expansion, as we fully expect it will, the Devil Canyon power will be absorbed much sooner and additional blocks of power will be required by 1980. In order to insure the availability of this additional power by the time it is needed, the feasibility studies of the Vee project should be started in fiscal year 1961.

Mr. MAGNUSON. Very well. We will recess until 10 o'clock in the morning.

WEDNESDAY, MARCH 2, 1960.

FISH AND WILDLIFE COORDINATION ACT STUDIES

Mr. CANNON. We will insert at this point this material which was requested of you yesterday (p. 56).

(The material referred to follows:)

BUREAU OF RECLAMATION AND CORPS OF ENGINEERS

Fish and Wildlife Coordination Act Studies (U.S. Fish and Wildlife Service)

FISCAL YEAR 1961 JUSTIFICATION

Funds in the amount of $750,000 are needed to permit detailed studies by the Fish and Wildlife Service of 191 Corps of Engineers and Bureau of Reclamation projects in the United States, exclusive of the Missouri River Basin. These studies will cover water control projects not yet authorized, authorized but not constructed, and projects under construction but not substantially completed. Such studies are responsive to provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) which require that the Fish and Wildlife Service determine the probable effects on fish and wildlife

resources of water control projects proposed under the jurisdiction or control of the Federal Government and to insure that wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs. Measures are recommended to protect and, where possible, to develop and improve fish and wildlife. The act authorizes transfer of funds for these studies to the Fish and Wildlife Service from moneys appropriated to the Federal construction agencies for investigations, engineering, or construction.

In its studies, the Service determines whether the net effects of a proposed project will be beneficial or adverse. If adverse effects are anticipated, the Service report will recommend specific measures to prevent or reduce the loss. Where feasible, the report will recommend measures to develop and improve conditions for the resource or its utilization. Acceptable measures are included as integral parts of project planning and costs in accordance with provisions of the Fish and Wildlife Coordination Act.

Measures recommended include, but are not limited to, minimum releases from reservoirs to improve the downstream fishery, minimum pools in reservoirs to sustain the reservoir fishery, protective screening to prevent fish from entering turbine intakes or irrigation canals, passage facilities for upstream and downstream migrant fishes, fish hatcheries where passage is infeasible or where other factors threaten materially to damage the run, selective reservoir clearing where such action would improve utilization, creation of subimpoundments within reservoirs for fish and wildlife management, and acquisition and development of project lands for fish and wildlife management purposes.

The opportunity to study projects in the general investigations programs is particularly desirable since the Fish and Wildlife Service then is enabled to formulate its recommendations in the earliest stage of project planning. Also, it frequently is desirable to study projects which are not in the construction agency's current study program. Examples of such projects would be those on which the construction agency has completed its studies but this Service has not yet had an opportunity to appraise the fish and wildlife aspects.

Bureau of Reclamation.—Funds in the amount of $200,000 are needed to permit detailed studies of 51 Bureau of Reclamation projects, exclusive of the Missouri River Basin. Many of these projects affect anadromous fish runs of great magnitude and value. Projects on the Snake River, for example, potentially affect the migration and spawning habitat of the steelhead and salmon fishery, both sport and commercial. Problems are particularly acute in connection with passage at high dams proposed in this area. Failure of migrants to pass these dams would terminate the existence of this fishery, along with the dependent commercial fishery industry and the increasingly large sport fishery generated by these streams. Disappearance of the runs would induce a substantial economic and social loss from both sources. The inundation of winter range for big game and blocking of their migration routes offer similarly perplexing problems.

As another example, the Fryingpan-Arkansas project, Colorado, has a significant potential for damage to fish and wildlife resources but offers outstanding opportunities for enhancement of both fishing and waterfowl. Big-game migration problems are involved here, as well. The size and scope of this project will require particularly close study to secure maximum advantage to all purposes served, including fish and wildlife.

Corps of Engineers.—Funds in the amount of $550,000 are needed to permit detailed studies of 140 Corps of Engineers projects throughout the United States exclusive of the Missouri River Basin. Projects in this program may have profound effects on fish and wildlife. The Mississippi River-Gulf outlet project, for example, will provide a 70-mile navigation channel from a point near New Orleans southeast through marsh and estuarine areas particularly rich in resources. An important segment of the gulf shellfish and finfish populations depends on these marshes as nursery areas and excellent habitat is available for fur bearers and waterfowl. Severe changes in environmental conditions are threatened, particularly in the fresh-salt water complexes, from channel alinement and positioning of borrow and spoil disposal sites. Other coastal projects pose similar threats on a lesser scale.

The threat to anadromous fish from construction of high dams by the Corps of Engineers is similar to that discussed above under the Bureau of Reclamation. The Rogue River, for example, supports a particularly outstanding salmon and steelhead fishery. The Corps of Engineers currently is considering several prime reservoir sites on the Rogue River for which careful planning will be required to conserve both the fishery and the unusually fine wildlife resources.

Detailed studies of Bureau of Reclamation projects, fiscal year 1961 (exclusive of Missouri River Basin)

Project	*Amount*
Amador County Basins, Calif	$2,000
Bear River project, Idaho and Utah	16,250
Cache La Poudre unit, Long Peak division, Colorado	2,500
Central Valley Basin, Calif	3,800
Central Valley Project:	
American River division, Auburn unit	2,000
Consumnes River diversion, Nashville unit, California	4,000
East Side division, (initial phase) California	4,000
East Side division, New Melones unit, California	2,000
East Side division, Yuba unit, California	3,000
San Felipe division, California	2,000
Trinity River division, Clear Creek south unit, California	3,000
Trinity River division, Cow Creek unit, California	2,000
West San Joaquin division, San Luis unit, California	2,000
Chakachamna Lake, Alaska	16,000
Chehalis River Basin, Wash	2,500
Chief Joseph Dam project, Methow division, Washington	4,000
Crater Lake, Long Lake, Speel River, Alaska	5,500
Denali Dam and Reservoir, Alaska	4,000
Devil Canyon, Susitna River Basin	6,000
Dorothy Lake, Alaska	4,500
Eureka Flats project, Washington	2,500
Falls City unit, Texas	5,800
Fryingpan-Arkansas project, Colorado	15,000
Gulf Basins project, Hockheim unit, Texas	3,500
Klamath project, Tule Lake division, Lost River storage unit, Oregon and California	3,500
Lower Horse Heaven project, Washington	2,000
Main Weiser project, Idaho	4,000
Mangum, Okla	3,000
McMillan Delta project, New Mexico	3,950
McNamara project, Blackfoot River, Mont	2,500
Monmouth-Dallas project, Oregon	2,500
Mountain Park, Okla	3,500
Norman, Okla	3,500
North coast project, Eel River division, Eel River division unit, California	4,000
North coast project, Eel River division, Round Valley unit, California	2,000
Pend Oreille River Basin, Idaho and Washington	2,000
Rogue River Basin project, Evans Valley division, Oregon	2,500
Salmon Falls project, Idaho	2,000
Salt Fork, Prairie Dog Town, Okla. and Tex	3,000
Snake Plain recharge project, Idaho	1,600
Snake River project, Garden Valley division, Idaho	7,600
Snake River project, Garden Valley division, Montour unit, Idaho	2,000
Teton Basin project, Wyoming and Idaho	3,000
Umatilla project, Birch Creek diversion, Oregon	3,000
Umpqua River project, Oakland division, Oregon	2,500
Umpqua River project, Olalla division, Oregon	2,500
Vee Canyon, Susitna River Basin, Alaska	4,000
Walker River project, California and Nevada	3,000
Walla Walla River project, Oregon and Washington	2,500
Washoe project, California and Nevada	3,000
Yakima project, Ahtanum division, Washington	3,500
Total, Bureau of Reclamation	200,000

Detailed studies of Corps of Engineers projects, fiscal year 1961 (exclusive of Missouri River Basin)

Project	CONSTRUCTION	Cost
	Albany-Lake Champlain, N.Y.	$1,300
	All American Canal, N.Y.	1,800
	Arkansas lock and dams, Arkansas	6,000
	Arkansas River and tributaries	1,500
	Barataria Bay Waterway, La.	7,000
	Barkley Lake and Dam, Ky. and Tenn.	2,300
	Bayou Bodcau, Red Chute, Loggy Black, and Cypress Bayous, La.	4,000
	Ben Franklin project, Washington	5,000
	Big Sandy navigation project, West Virginia and Virginia	3,500
	Boise River flood control project, Idaho	1,200
	Boswell Reservoir, Okla.	1,000
	Bradley Lake hydroelectric project, Alaska	1,600
	Cape Fear River Basin, N.C.	6,000
	Carlyle Reservoir, Ill.	3,000
	Cascadia Dam and Reservoir, Oreg.	5,700
	Choctawahatchee River navigation project, Florida and Alabama	4,000
	Chunky Creek, Chickasawhay, and Pascagoula Rivers, Miss.	3,500
	Coal River, W. Va.	6,800
	Columbia and Lower Willamette Rivers, Wash. and Oreg.	3,000
	Consumnes River, Calif.	3,000
	Cooper River rediversion, South Carolina	3,000
	Cumberland River at Bunches Creek, Ky.	4,000
	Dardanelle Dam and Reservoir, Ark.	2,500
	Dayton project, Touchet River, Wash.	4,500
	De Gray Dam and Reservoir, Ark.	4,000
	Delaware River anchorages, New Jersey and Delaware	4,900
	Enaville project, Coeur d'Alene River, Idaho	5,000
	Eufaula Reservoir, Okla.	2,000
	Fall Creek Dam and Reservoir, Oreg.	3,000
	Fire Island, N.Y.	2,200
	Flathead Lake outlet, Montana	5,800
	Flint River, Ga.	2,500
	Flood control-local protection, Buffalo district	1,800
	(*a*) Cattarangus Creek, N.Y.	
	(*b*) Conneaut Creek, N.Y.	
	(*c*) Port Byron, N.Y.	
	Foster Dam and Reservoir, Oreg.	5,300
	Freshwater Bayou, La.	2,000
	Gastineau Channel followup study, Alaska	3,500
	Gate Creek Dam and Reservoir, Oreg.	3,000
	Gillham Reservoir, Ark.	2,000
	Green River Reservoir No. 2, Ky.	2,300
	Hopkinton-Everett, N.H.	4,500
	Horse Creek Dam and Reservoir, Oreg.	2,500
	Hugo Reservoir, Okla.	1,900
	Humboldt Harbor and Bay, Calif.	3,000
	Huntington Reservoir, Ind.	2,700
	Hurricane studies, Atlantic coast, Long Island, N.Y.	3,400
	Hurrican studies, Philadelphia district	4,400
	Hurrican studies, Sandy Hook, N.Y.	3,800
	Ice Harbor project, Washington	1,500
	Inland waterway (C. & D. construction), Delaware	3,900
	Intracoastal Waterway, N.Y.	3,100
	Intracoastal Waterway, Caloosahatchee to Anclote, Fla.	5,000
	Intracoastal Waterway, Jacksonville to Miami, Fla.	2,500
	Joanna Reservoir, Mo.	3,000
	John Day project, Washington and Oregon	1,500
	Lack Okeechobee comprehensive, Florida	21,000
	Little Coose Dam Wash.	7,000
	Little Neck Bay, N.Y.	2,000
	Lower Granite Lock and Dam, Wash.	3,500
	Lower Monumental project, Washington	1,000
	Lower Roanoke River, Va. and S.C.	7,500

Detailed studies of Corps of Engineers projects, fiscal year 1961 (exclusive of Missouri River Basin)—Continued

CONSTRUCTION—continued

Project	*Cost*
Lukfata Reservoir, Okla	$2,000
Marion Reservoir, Kans	1,500
Martin Creek, Nev	1,500
Matagorda ship channel, Texas	4,000
Merced River, Calif	1,400
Miscellaneous projects, Alaska	4,100
Missiassinewa River, Ind	2,500
Mississippi River—gulf outlet, Louisiana	95,000
Mississippi River and tributaries project, detailed studies, Louisiana, Arkansas, Mississippi, and Tennessee	7,000
Nanticoke River, Del	2,000
Neuse River Basin, N.C	7,500
New Bern and vicinity hurricane studies, North Carolina	5,000
New Melones Reservoir, Calif	2,000
Northeast flood surveys, Connecticut, Merrimack, Housatonic River Basins, and river basins of Maine	12,800
Northern Jersey meadows	2,000
Ouachita Black Rivers navigation, Arkansas and Louisiana	2,300
Pajare River, Calif	5,000
Panther Creek, Ky	2,500
Penny Cliffs Dam and Reservoir, Idaho	10,500
Petit Jean River, Ark	4,000
Pine Creek Reservoir, Okla	2,300
Potomac River Basin, Md., Va., W. Va., and Pa	18,500
Russian River, Calif	5,000
Sacramento River and major and minor tributaries, California	1,000
Sacramento River, Chico Landing to Red Bluff, Calif	1,000
St. Johns River Basin, Fla	6,000
Salem Church Reservoir, Va	7,000
San Francisco Bar-Stockton navigation project, California	1,000
San Francisco Bay barrier project, California	2,000
San Luis Obispo Harbor, Calif	3,000
Santa Barbara Harbor, Calif	3,000
Santee River Basin, N.C. and S.C	2,300
Somersville Reservoir, Tex	4,300
Strube project, Oregon	3,500
Tonawanda Creek, N.Y	3,300
Trinidad Reservoir, Colo	2,000
Twelve Pole Creek, W.Va	10,500
Umpqua River Basin, Oreg	6,000
Umpqua River, mouth to Reedsport, Oreg	2,000
Uniontown Locks and Dams, Ky	2,500
Walla Walla River, Oreg. and Wash	3,500
West Branch Susquehanna, Pa	2,000
Wicomico River, Md	3,000
Wilkesboro Reservoir, N.C	2,000
Willow Creek, Heppner, Oreg	3,500
Yuba River, Calif	2,000
Total, construction	500,000

Detailed studies of Corps of Engineers projects, fiscal year 1961 (exclusive of Missouri River Basin)—Continued

GENERAL INVESTIGATIONS

Project	*Cost*
Arkansas and Red Rivers, Okla	$2,000
Big Hill Creek, Kans	1,000
Big Muddy, Ill	2,000
Biscayne Bay hurricane study, Florida	12,000
Coquille River Basin, Oreg	3,000
Cow Creek, Kans	1,000
Grande Ronde River Basin, Oreg. and Wash	6,000
Lake Kemp, Tex	1,000
Mokelumne and Consumnes Rivers, Calif	1,000
Rogue River Basin, Oreg	6,000
Sabine-Neches Waterway, Tex	1,000
Sanders, Big Pine, and Colliers Creeks, Tex	2,000
Thief River Basin, Minn	2,000
Yamhill River Basin, Oreg	2,000
Flood control, local protection, New York district	1,000
(*a*) Esopus Creek in Kingston, N.Y.	
(*b*) Mohawk River, N.Y.	
(*c*) Roundout Creek and Wallahill River, N.Y.	
1. Black Dirt area.	
2. Ellenville.	
3. Rosendale.	
(*d*) Sawmill River plus other Westchester County streams.	
(*e*) Schoharie Creek, N.Y.	
(*f*) Wappinger Creek.	
Flood control, local protection, Pittsburgh district (3 projects)	700
(*a*) Buckhannon Creek, W. Va.	
(*b*) Chartiers Creek, Pa.	
(*c*) West Fork River, W. Va.	
Navigation projects, Buffalo district	800
(*a*) Buffalo Harbor, N.Y.	
(*b*) Erie Harbor, N.Y.	
(*c*) Irondequoit Bay, N.Y.	
Navigation projects, New York district (4 projects)	2,000
(*a*) Passaic River, N.J.	
(*b*) Raritan River, N.J.	
(*c*) Shrewsbury River, N.J.	
Navigation projects, Philadelphia district	3,500
(*a*) Delaware River at Camden, N.J.	
(*b*) Delaware River, Delaware City Channel.	
(*c*) Waterway from Chincoteague Bay, Va. to Delaware Bay, Del.	
Total, general investigations	50,000

Fiscal program, branch of river basin studies, fiscal year 1961

Region	Corps of Engineers			Bureau of Reclamation	Total
	General investigations	Construction	Total		
Central office		$10,000	$10,000	$5,000	$15,000
Region 1. Portland, Oreg	$18,000	119,000	137,000	95,000	232,000
Region 2. Albuquerque, N. Mex	8,000	24,000	32,000	60,000	92,000
Region 3. Minneapolis, Minn	4,000	11,000	15,000		15,000
Region 4. Atlanta, Ga	12,000	252,000	264,000		264,000
Region 5. Boston, Mass	8,000	75,000	83,000		83,000
Alaska		9,000	9,000	40,000	49,000
Total	50,000	500,000	550,000	200,000	750,000
	Number of projects				
Central office					
Region 1. Portland, Oreg	5	36	41	35	76
Region 2. Albuquerque, N. Mex	6	11	17	10	27
Region 3. Minneapolis, Minn	2	4	6		6
Region 4. Atlanta, Ga	1	33	34		34
Region 5. Boston, Mass	20	19	39		39
Alaska		3	3	6	9
Total	34	106	140	51	191

General Investigations, Special Foreign Currency Program

Mr. Cannon. We will take up under "General investigations" the foreign currency program and include pages 65 through 69.

(The pages referred to follow:)

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Foreign engineering research (total program costs)			$1,000,000
2. Relation of costs to obligations: Obligations incurred for costs of other years (unpaid undelivered orders), net			3,957,000
Total program (obligations)			4,957,000
Financing: Appropriation (new obligational authority)			4,957,000

Object classification

	1959 actual	1960 estimate	1961 estimate
02 Travel			$84,000
07 Other contractual services			4,843,000
08 Supplies and materials			30,000
Total obligations			4,957,000

General Investigation (Special Foreign Currency Program)

EXPLANATION OF NEW LANGUAGE, FISCAL YEAR 1961

The Agriculture Trade Development and Assistance Act of 1954, as amended, authorizes the use of surplus foreign currency proceeds derived from the sale of surplus agricultural commodities, for the conduct and support of scientific research activities and programs between the United States and other countries.

A number of the countries in which the United States has acquired such currencies surplus to its normal requirements have facilities for, and have performed research work in fields in which the Bureau of Reclamation is engaged. The Bureau feels that such scientific facilities and know-how as are available in certain foreign laboratories would be of great assistance to it in the solution of many of its problems. To avail itself of the research facilities in those countries where foreign currency credits are available the Bureau proposes this new language, under which work supplemental to its domestic activities will be conducted.

Summarized financial data

Appropriation, fiscal year 1960	
Estimate of appropriation, fiscal year 1961	$4, 957, 000

JUSTIFICATION

Authorization.—Section 104(k) of the Agricultural Trade Development and Assistance Act of 1954, as amended (7 U.S.C. 1704(k),) authorizes the use of foreign currency proceeds from sales of surplus agricultural commodities, "To collect, collate, translate, abstract, and disseminate scientific and technological information and to conduct and support scientific activities overseas including programs and projects of scientific cooperation between the United States and other countries * * *." Under this program $4,957,000 is requested for expenditure during the next 3 years for research and associated scientific activities related to the Bureau's programs. Of this amount $1 million would be expended in fiscal year 1961. A tabulation of the proposed program to be conducted with the foreign currencies is given below by country. Amounts are shown in their U.S. dollar equivalents.

Country	3-year program	Fiscal year 1961 program	Balance
India	$876, 000	$198, 500	$677, 500
Israel	238, 000	54, 100	183, 900
Pakistan	631, 000	143, 000	488, 000
Poland	1, 131, 000	200, 000	931, 000
Spain	435, 000	98, 500	336, 500
UAR (Egypt)	456, 000	83, 000	373, 000
Yugoslavia	1, 076, 000	184, 900	891, 100
Administrative and travel	114, 000	38, 000	76, 000
Total	4, 957, 000	1, 000, 000	3, 957, 000

Work proposed, fiscal year 1961, $1 million.—A summary of the amounts proposed to be used in fiscal year 1961, and general fields within which specific projects might be undertaken, are as follows:

India, $198,500; Pakistan, $143,000.—To be used for studies of canal gradients through different types of soils; investigation of the use of jute fibers as a reinforcing material in asphalt canal linigs; research in connection with the control of evaporation from open water surfaces; and studies of electrical treatment of soils for stabilization and drainage and electroreclamation of saline-alkali soils.

Israel, $54,100.—For studies in weed control, sedimentation (both in theory and application), and control of evaporation from open water surfaces.

Poland, $200,000.—For a survey of protective coating methods; compilation and evaluation of statistics on concrete structures; studies on settlement of structures; streamflows, and sediment transport in streams and pipes; and investigations of use of precast concrete forms for dam construction.

Spain, $98,500.—To be used for studies in soil mechanics including properties of and testing of expansive clays; determination of energy of submerged water jets; and measurements of rock properties in place.

Yugoslavia, $184,900.—To be used for studies in soil mechanics, including effect of crytal orientation on strength of rocks, and other measurements of rock properties; investigation of the use of precast concrete forms for dam construction; and hydraulic studies of aeration during flows through vertical shafts, closed conduits, and open channels.

UAR (Egypt), $83,000.—To be used for research in connection with studies of sedimentation and corrosion problems; and investigations concerning settlement of structures.

Administrative and travel, $38,000.—In addition to the $38,000 "Administrative and travel" item in fiscal year 1961, $50,000 in U.S. funds has been included under "General engineering and economic investigations, engineering methods and materials research" to cover expenses in support of the foreign currency program. The total estimated for 1961 is $88,000. An example of the use of these domestic funds would be the purchase of tickets for travel within the United States, to and from ports of embarkation.

Final determination of the research projects to be undertaken in each of the countries listed will be made through negotiations and agreement after funds in specific amounts are made available. In every case, the work to be done abroad with foreign currency funds will be supplemental and in addition to research projects performed in domestic laboratories of the Bureau of Reclamation or other Government agencies.

Related scientific activities to be conducted in the individual countries listed above are the preparation of bibliographies in scientific subjects of interest to the Bureau, technical study tours by Bureau employees, and attendance at international scientific meetings (when approved by the Department of State).

EXPLANATION OF PROGRAM

Mr. CANNON. We would like to have you tell us something about this special foreign currency program, Mr. Bennett.

Mr. BENNETT. Yes, sir, Mr. Chairman.

Under the language of section 104–K, title I, of the Agricultural Trade Development and Assistance Act of 1954, the U.S. Government acquires foreign currencies. Those currencies are available for expenditure only within the countries from which they are obtained.

There are excesses of those currencies over and above that which the general foreign programs need.

In order to make use of those funds we are asking for a 3-year program with an appropriation of $4,957,000 with which to acquire those foreign currencies in order to perform research in the selected countries which have available excess foreign currencies.

Countries involved are India, Israel, Pakistan, Poland, the United Arab Republic, Yugoslavia, and possibly Spain. There are some funds, as we discussed yesterday, for administrative work and travel.

Our understanding of this particular appropriation is that it would not increase the total appropriation for the United States to do this work. Although our request is in addition to the Bureau program, the Bureau of the Budget tells us that it is offset by a corresponding decrease in fund requirements for the Commodity Credit Corporation.

Each year the Commodity Credit Corporation requests funds in an amount equal to its net loss. Consequently, any appropriation to us would in effect reduce the amount necessary to appropriate to the Commodity Credit Corporation.

We would utilize these funds as shown in the program starting on page BR–67 of the justification book. We believe that each of these countries concerned has something to offer in the way of research on particular types of items. The research would be conducted under contracts which we would negotiate with the assistance of our Embassies, with universities, individuals, companies, or other organizations which might be available and willing to do the work.

We think the work which they would do would be very, very helpful in this country. It would have the effect of speeding up knowledge that we could well use in our work and which other engineers and scientists and Federal organizations could also use.

The amount of the appropriation is for a 3-year program because we feel we should have the fund available in total to start with.

In the first place, there is some question of our legal authority to contract, in this kind of a case, subject to appropriation. Secondly, all other agencies historically have been operating under this type of an arrangement.

Third, if we tried to go on an annual obligation basis there is no assurance that after this year the currency of the particular country with whom we had a contract would be available so we think those currencies should be obtained initially in the first year and then held over as obligations through the program as we have shown it.

We contemplate actual expenditures in fiscal year 1961 of $1 million with the remaining $3,957,000 spread over the next 2 years.

I think that covers the generalities of the proposal, Mr. Chairman.

Mr. CANNON. These are Public Law 480 funds which the Government has received in exchange for surplus goods exported.

Mr. BENNETT. That is correct. These are funds which are derived under the Agricultural Trade Development and Assistance Act of 1954, as amended, and that act does authorize the use of the foreign currency proceeds from the sales of surplus agricultural commodities for research.

Mr. CANNON. Would you say that this is another form of foreign aid?

Mr. BENNETT. I am inclined to think basically it is a manner in which the United States can make good use of some of the funds which it is obtaining through the sale of the surplus agricultural commodities.

True, it does also help the foreign countries. These funds are available to the United States. It has obtained them from the sale of surplus agricultural commodities and they can be used only in that country under the terms of the various treaties and agreements, so although we do obtain a benefit from them which we could not otherwise obtain, it in turn, does aid the particular country.

Mr. CANNON. Mr. Taber?

Mr. TABER. This total amount is appropriated from these local funds which we cannot spend anywhere else? Is that right?

Mr. BENNETT. The $4,957,000 is appropriated out of U.S. funds, and they are entered on the books of the Treasury as a credit to the Commodity Credit Corporation, in turn for which Treasury releases to us, in the countries concerned, the excess foreign currencies, which are those that are used to pay the costs under the research contracts.

THREE-YEAR REQUEST

Mr. CANNON. You are requesting $4,957,000, $1 million of which is to be spent the first year?

Mr. BENNETT. Yes, and the $3,957,000 in the 2 subsequent years.

Mr. CANNON. Has the Bureau participated in any work of this type?

Mr. BENNETT. Not of this particular type within these foreign countries; no, sir.

Mr. CANNON. Why is it necessary to appropriate at this time more than $1 million for a program in 1961? Why not cross those bridges when we come to them in 1962 and 1963?

Mr. BENNETT. Three reasons, Mr. Chairman. I think the most important of the three reasons is that if we try to go on an annual basis we would have no assurance that the foreign currencies in a particular country would be available in a subsequent year.

Mr. CANNON. Is there any possibility that the value of these currencies will depreciate in the meantime? There have been some surprising changes in the value of foreign currencies in years gone by.

Mr. BENNETT. There is always that possibility.

On the other hand, even if they do depreciate we still have a contract related to the amount of money available, and I think it probably means if the value depreciates you may not get quite as much work done under that contract.

TYPES OF RESEARCH

Mr. CANNON. As to research in evaporation from water surfaces, I am wondering what research you can do in India, Pakistan, and Israel that you cannot do here?

Mr. BENNETT. I think, Mr. Chairman, as a matter of fact that any of the work contemplated in any of these countries can, of course, be done in this country, but by having some of this work done overseas in this manner with foreign currencies it would expedite the total research program.

We do not know today, and will not know, of course, until after we have had opportunity to talk to the scientists in these countries, exactly what they can do.

We have suggested throughout that certain kinds of work can be done in these countries because the scientists are qualified in those fields.

In India, for instance, we are proposing certain research in electrical treatment of soils.

We are proposing looking into possibilities of research properties of gravelly soils, and particularly in the jute reinforcing of asphalt lining.

We think they can contribute, also, to the knowledge in the evaporation reduction by monomolecular layers.

Mr. CANNON. What will you do in Spain and Yugoslavia that cannot be done here? What is the practical value of this program?

Mr. BENNETT. The value of having it done there to supplement work in this country is very, very high.

VALUE OF FOREIGN RESEARCH

Mr. CANNON. Can you perform the research here as well as in foreign countries, speaking of the mechanics of it?

Mr. BENNETT. There is no question about it.

Mr. CANNON. If we can do it just as well here as in foreign countries and recognizing that conditions in foreign countries sometimes vary from ours, what would be the additional value of any work done there to meet conditions here in the United States?

Mr. BENNETT. I think the additional value, Mr. Chairman, is that under this program we get the work done now without any additional cost to the United States.

If we are able to do this kind of work in this country to the extent contemplated here it would go over many, many years.

Mr. CANNON. Of course, it is very evident from the budget that it involves additional cost to the United States.

Furthermore we already have technicians in our foreign representation who could at least make observations which would make this work fully as valuable to us as work done by these extra men we send over there for this special purpose?

Mr. BENNETT. We do not contemplate sending men there from this country to do this research work.

FUNDING OF THE PROGRAM

Mr. ANDERSEN. Mr. Chairman, as you know I have had the privilege of going abroad several times, and I think I have gained from those trips, especially through India and Pakistan, some knowledge of what these gentlemen are saying to us this morning.

Working on the Agriculture Appropriations Subcommittee I have learned that what these gentlemen want of us this morning is the privilege of utilizing $4,975,000 of this currency over the next 3-year period. I cannot help but feel that is a reasonable request because I do not see, Mr. Chairman, how we in the United States are going to find practical uses for all of that currency which is locked up in those foreign countries today.

This appropriation to me is merely a transfer on the books, so far as dollars are concerned. Is that not correct?

Mr. BENNETT. That is correct.

Mr. ANDERSEN. It is a legitimate method of spending a little of it and helping our program at home. At the same time, we help these folks abroad with what I have always contended is the best part of foreign aid, and it is the part I personally support, the giving of our know-how to these people abroad, showing them how to do things for themselves.

I presume what you are intending to do with this is to go along certain lines of research. Of course, we could do the work here but the main thing so far as you gentlemen are concerned is that this money would be available earlier?

Mr. BENNETT. That is right.

Mr. ANDERSEN. The money is available because of the fact Commodity Credit has somewhere around $1 billion in this currency abroad, Mr. Chairman.

When these gentlemen ask for $4,957,000, they are asking to have charged up to the Interior Department that much and credited to the books of Commodity Credit. That is virtually what it is.

The only real expense in dollars here, gentlemen, would be approximately $50,000 for expenditures here in this country getting to the port of embarkation. Is that right?

Mr. DOMINY. Yes, sir; and to service this program.

Mr. BENNETT. And even in some instances, if we can handle it, if we can purchase airline tickets in the foreign country with foreign currency, we will not even have to do that.

Mr. ANDERSEN. I understand from a conversation we had in our subcommittee yesterday there are two shiplines abroad from this country on which you gentlemen can put your scientific personnel and buy your passage with foreign currency.

Mr. BENNETT. That is correct.

Mr. CANNON. Do you propose to spend any money abroad other than foreign currency funds?

Mr. BENNETT. No. We propose to spend foreign currency funds abroad for the work done in that country.

The foreign currency is already available in these countries and is the property of the United States, but it can be spent only in those particular countries.

Mr. ANDERSON. That is the point I wanted to bring out, Mr. Chairman.

I am satisfied in my own mind, gentlemen, that in a few years' time our Nation may say to a nation such as India or Pakistan, "Well, we have certain huge amounts of your currency. We will give it back to you. We will forfeit our rights and just turn it back to you."

It will be a further gift on the part of the U.S. taxpayer, but I think in the meantime perhaps here is a spot that we can utilize this.

That is, provided these gentlemen can assure me that the results of this research will redound to the welfare of the American people. That is all I want to be satisfied on.

Mr. BENNETT. That is certainly the intent.

Mr. ANDERSEN. That is the intent?

Mr. BENNETT. Yes, sir.

Mr. ANDERSEN. What you do here will help us eventually in our reclamation projects here in America?

Mr. BENNETT. Help our reclamation projects, help the Corps of Engineers projects, private consulting engineers, and the overall water conservation programs.

Mr. ANDERSEN. At the same time you will also make available the results of that scientific research to the countries in which you are doing that particular research?

Mr. BENNETT. That is correct.

Mr. ANDERSEN. Personally, Mr. Chairman, to me this does not really entail much of an expenditure of U.S. dollars.

Perhaps we can get a lot of good work.

Mr. CANNON. We already have large facilities there, especially in connection with State Department work, which is slowly but surely absorbing these funds.

Why should we draw upon these funds for this purpose when eventually they will be needed for our regular oversea operations?

Mr. ANDERSEN. We have evidence to the effect, and Mr. Kirwan and Mr. Taber and you other gentlemen know this, that the State Department is using considerable amounts of these funds for the construction of new embassy buildings and personnel buildings all around the world wherever we have these funds available.

I also approve of expenditures in that way. If we did not expend it that way we would have to put up good U.S. dollars to do so.

My sole point here is that I am backing these gentlemen up on their request simply because I do not think it will cost our taxpayers a dime except that amount of the money getting our scientific personnel abroad from points within the United States to the port of embarkation.

From there on their expenses are paid from the proposed source.

If I am mistaken correct me, but this currency has been generated by Public Law 480 where we send surpluses abroad. We give them food, and in return we get scrip to our credit.

Mr. CANNON. We have paid a very high price for it.

Mr. ANDERSEN. I know it.

Mr. CANNON. We have had to buy these commodities and we bought them at far above the world price so that this money is anything but free.

You include an additional $50,000 for this program under engineering methods and material resources heading.

Mr. BENNETT. Yes, sir.

Mr. CANNON. Those funds are to purchase tickets for travel within the United States to ports of embarkation?

Mr. BENNETT. That is right.

Mr. CANNON. On what do you base that estimate of $50,000?

Mr. BENNETT. It is more than mere travel. It also includes administrative costs of running the program.

Mr. CANNON. That must come out of the Public Treasury?

Mr. BENNETT. That is correct; yes, sir.

Mr. CANNON. Off the record.

(Discussion held off the record.)

USE INTENDED OF FUNDS REQUESTED

Mr. CANNON. Will you give us a breakdown on how you propose to spend this money?

(The information requested follows:)

HOW THE BUREAU OF RECLAMATION EXPECTS TO SPEND THE FOREIGN CURRENCY CREDITS

The attached tabulation shows how much the Bureau of Reclamation expects to spend in each of the countries for which foreign currency research funds are being requested. Descriptions of each subject in which it is proposed to conduct research in the countries listed, as well as a list of the institutions and leading scientific personnel in each of these countries are also attached.

Special foreign currency program—Tabulation of proposed expenditures

Country	3-year program	Fiscal year 1961 program	Balance
India	$876,000	$198,500	$677,500
Israel	238,000	54,100	183,900
Pakistan	631,000	143,000	488,000
Poland	1,131,000	200,000	931,000
Spain	435,000	98,500	336,500
UAR (Egypt)	456,000	83,000	373,000
Yugoslavia	1,076,000	184,900	891,100
Administrative and travel	114,000	38,000	76,000
Total	4,957,000	1,000,000	3,957,000

INDIA

1. Electrical treatment of soils

This research study would include a review of literature to determine the extent of present knowledge, and a laboratory study to supplement this knowledge by testing additional soil types.

Laboratory tests on a variety of soil types using specimens that are electrically treated would be conducted, to establish indices for the various soil types and conditions, clarifying them in regard to their suitability for electrical treatment.

A comprehensive report including a bibliography would be prepared in English.

2. Properties of gravelly soils

This research project would require the testing of numerous large specimens of gravelly soil in which the size and sharpness of the particles would be varied in a number of fine materials such as sand, silt, and glass of various degrees of plasticity.

Through these tests and a survey of present-day literature the effect of gravel content on the properties of soils would be evaluated and shown on charts suitable for design use. A comprehensive report in English of the laboratory tests and literature study would be required including a bibliography with abstracts in English.

3. Jute reinforcing in asphaltic lining (prefabricated)

This research study would include a search of technical literature, and laboratory tests of pretreated jute fabric to increase its resistance to micro-organisms with various types and quantities of asphaltic materials.

A study of installation techniques would also be made to provide a rapid low-cost method utilizing local labor. Limited studies to date show that heavier prefabricated linings can be installed in canals in service. A study would be made to improve this technique.

4. Evaporation reduction by monomolecular layers

Research work on the use of monolayers for evaporation reduction would include an evaluation of present-day information and laboratory and field tests, from foreign sources. Research would be directed toward an evaluation of the properties and behavior of various materials in hot climates and the isolation, identification, and analysis of related problems.

Field tests would be directed toward developing practical, economical methods of applying and maintaining the film on water and to develop techniques and equipment for applying the various preparations. Behavior under different hydrologic and meteorologic conditions would be noted.

5. Seepage measurements by streaming potentials

This research project would be directed toward determining the feasibility of utilizing streaming potential to measure seepage losses and toward developing suitable equipment for recording seepage flow rate.

The amount of waterflowing, the pore size and seepage, the physical nature of the soil, the hydraulic pressure distribution, and electrical potentials and important variables to be considered. Field tests would be required to compare the accuracy of methods now in general use.

6. Free fall drops in open channels

This study would be to develop an economical drop designed to maintain normal water surface levels and velocity distribution in the upstream channel and to develop an effective energy-dissipator at the base of the free fall drop.

A literature search would be made to determine present knowledge of the subject and an annotated bibliography with abstracts in English prepared. The literature search would be followed by hydraulic model tests. Data would be presented in a form readily usable for design purposes.

7. Pervious foundations for concrete dams

Many different methods of design of dams on pervious foundations have been utilized in both this and foreign countries. Because Asian and north African countries have had considerable experience in such structures, and since some of the more recent theories have been proposed by outstanding engineers from this area, information concerning dams on a pervious foundation in these countries would be very helpful.

Field tests would be conducted and the data analyzed. Particular information would be obtained regarding foundation performance under the actual applied loadings.

Research institutions and principal scientific personnel

(Numbers refer to subjects)

Central Water and Power Research Station, Bombay (Director: Mohanlal G. Hiranandani)—1, 2, 3, 4, 5, 6.

Irrigation and Power Research Institute, Amritsar, Punjab (Director: Dr. Harbans Lal Uppal)—1, 5, 6.

Irrigation Research Institute, Roorkee, Uttar Prodesh (Director: K. N. Kathpalia)—1, 2, 3, 6, 7.

Central Road Research Institute, New Delhi (Director: S.R. Mahra)—1, 2, 7.

The Soil Engineering Research Station, Chepauk, Madras (Director, A. R. Venkatachari)—1, 2, 7.
Hydraulic Research Station, Krishnarajasagara, Mysore (D. Doddiah)—1, 6
Indian Institute of Science, Bangalore, Mysore (Director: K. Streenivasan)—2, 4, 7.
Geological Survey of India, Calcutta (Director: B. C. Roy)—2, 5, 7.
River Research Institute, Mohanpur, West Bengal (Director: B. Maitra)—6, 7.
Irrigation Research Institute, Roorkee (Director: Rameshwar Saran)—6, 7.
Engineering Research Laboratories, Red Hills, Hyderabed-Deccan (R. K. V. Nfarasimham, Director)—6.
Irrigation Development Division, Poondi (via Trevellore), Madras (Executive Engineer: P. K. Kandaswamy)—6.
Hirakud Research Station, Hirakud, Orissa (Research Officer: S. N. Buru Rau)—6.

ISRAEL

1. Evaporation reduction by monomolecular layers

Research work on the use of monolayers for evaporation reduction would include an evaluation of present-day information and laboratory and field tests from foreign sources. Research would be directed toward an evaluation of the properties and behavior of various materials in hot climates and the isolation, identification, and analysis of related problems.

2. Weed control (irrigation waterways)

This study would be directed toward discovering and identifying biological forms which in their life processes significantly effect the growth and survival of submersed aquatic weeds, specifically those commonly known as pond weeds. Promising biological control methods, and the life histories and the organisms' life histories and environmental association with the aquatic plants would be studied by application to available irrigation systems.

The survey of current literature and investigations would be made and findings correlated with the research results.

3. Sediment exclusion at diversions

This research would include analysis and compilation of data in published reports on sediment-exclusion devices, to determine gaps and limiting criteria, and to develop general criteria for designing sediment-exclusion devices at canal intakes.

Following the literature search and analysis of existing data, the most promising devices would be chosen for laboratory testing to establish basic characteristics. Studies would be conducted for various shapes and sizes of vortex tubes to establish efficient depths and velocities of flows over the tubes.

4. Sediment transport theory

This study would include a literature search, a theoretical study to show how the theory of negative acceleration in hydraulic flow and channels applies to the transport of sediment materials, checking the theory by application of data from tests that have been run in flumes and natural channels and verifying the theory and its application to sediment transport by means of a hydraulic model study.

Research institutions and principal scientific personnel

(Numbers refer to subjects listed above)

Technion Research and Development Foundation, Haifa (Director: J. G. Zeitlen)—1, 2, 3, 4.
Weizmann Institute of Science, Rehovoth (Messrs. I. R. Miller and A. Bavil)—1, 2, 3, 4.

PAKISTAN

1. Electric treatment of soils

This research study would include a review of literature to determine the extent of present knowledge, and a laboratory study to supplement this knowledge by testing additional soil types.

Laboratory tests on a variety of soil types using specimens that are electrically treated, would be conducted to establish indexes for the various soil types and soil conditions clarifying them in regard to their suitability for electrical treatment.

A comprehensive report including a bibliography would be prepared in English.

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2. Evaporation reduction by monomolecular layers

Research work on the use of monolayers for evaporation reduction would include an evaluation of present-day information and laboratory and field tests, from foreign sources. Research would be directed toward an evaluation of the properties and behavior of various materials in hot climates and the isolation, identification, and analysis of related problems.

3. Free fall drops in open channels

This study would be to develop an economical drop designed to maintain normal water surface levels and velocity distribution in the upstream channel and to develop an effective energy dissipator at the base of the free fall drop. Variables would include different sizes of rectangular, trapezoidal, and semicircular channels; vertical and sloping drops of various heights; and different energy-dissipating devices at the base of the drop.

A literature search would be made to determine present knowledge of the subject and an annotated bibliography with abstracts in English prepared. The literature search would be followed by hydraulic model tests which would be governed by the findings of the literature search.

The investigation would be directed toward defining the hydraulic losses in the structure and deriving relationships between critical dimensions of the drop structure and the energy dissipator. Data would be presented in a form readily usable for design purposes.

4. Artificial islands for diversion intakes

The study would develop general design criteria and would include collecting reports of hydraulic model studies and data from prototype installations correlating and analyzing the data to develop relationships which can be used for design of artificial islands and performing laboratory tests to extend and broaden the available data.

A literature search would be made to determine the extent of existing knowledge and to compile published data in English on the use of artificial islands.

A hydraulic model study of a typical installation would be conducted to supply data lacking in existing literature and to develop suitable relationships from the data. The number and details of the tests would depend on the model and available facilities.

5. Pervious foundations for concrete dams

Many different methods of design of dams on pervious foundations have been utilized in both this and foreign countries. Because Asian and north African countries have had considerable experience in such structures, and since some of the more recent theories have been proposed by outstanding engineers from this area, information concerning dams on a pervious foundation in these countries would be very helpful.

Field tests would be conducted and the data analyzed. Particular information would be obtained regarding foundation performance under the actual applied loadings.

Research institutions and principal scientific personnel

(Numbers refer to subjects listed above)

Irrigation Research Institute, Lahore (Director: Mian Muzaffer Ahmad)—1, 3, 5.
Scientific and Industrial Research Organization, Karachi (Director: Dr. Salimuzzaman Siddiqui)—2, 4.
Hydraulic Research Laboratory, Tejgon, Dakka (M. A. Rahman)—3.

SPAIN

1. Energy of submerged water jets

This research study of sudden enlargements would be directed toward establishing the basic relationships from characteristics and various and jet-to-enlargement diameter ratios at low, moderate, and high heads, and would include a study of the hydraulic characteristics of single- and multiple-orifice plates, singly and in series in pipelines.

An analytical study would be made of the flow conditions, transient pressures, vapor pressure formations, and hydraulic losses for single and multiple high-velocity water jets discharging concentrically and eccentrically into abrupt enlargements and flow seepages.

Laboratory tests would then be made by discharging water through concentrically placed circular orifices through various arrangements and spacings of multiple-orifice plates, and through eccentrically placed single openings.

2. Measurement of rock properties in situ

The proposed research study of properties of rock in its natural state would consist of searching pertinent literature to compile information on work done throughout the worlds and to evaluate different methods of approach being used. Field sites representative of some of the pressure tunnels to be constructed in the United States would be selected and jacking or hydrostatic pressure tests would be applied to cylindrical chambers carefully constructed to avoid damage to the rock by blasting. A comprehensive report, including a complete bibliography with abstracts in English would be produced from this study.

3. Properties of expansive clay

This research on expansive clays would include a continuation of laboratory studies expanding the number and types of clay materials tested in an effort to further extend the criteria and identifying clays and overcoming their objectionable properties.

Methods of treating expansive clays to reduce swelling forces, particularly procedures of treating the clays in place without disturbing or by reworking with chemicals or other means would be investigated and appraised. Methods of identifying or recognizing the various clays would be examined with the objective of establishing simplified identification procedures.

4. Pressure tunnel linings

Some of the major considerations in the design of pressure tunnels are the head losses caused by friction in the tunnel and the manner in which the internal pressure loading is resisted. Present practice in tunnel design is known to be somewhat conservative regarding the head losses in both lined and unlined tunnels, and the structural performance of the lining in conjunction with the surrounding rock.

Specific data on head losses in lined and unlined tunnels and the structural performance of tunnel linings would be obtained through a field testing program on existing installations. These data would be correlated with other available information and presented as charts or tables suitable for use in design.

A comprehensive report would be prepared in English, comparing the actual performance of lined and unlined pressure tunnels to the design requirements regarding the head losses in the tunnel and the structural performance of the lining.

5. Design and analysis of penstock branch connections

Penstock branch connections are statically indeterminate structures which present a number of problems in design. Among these are the determination of adequate beam depths and shell thicknesses.

Model and prototype testing programs would be undertaken to ascertain and verify the design assumptions. A determination of the effective curvature factors to be used in computing stresses and local stress concentration factors would be made. A comprehensive research report, in English, would be prepared.

Research institutions and principal scientific personnel

(Numbers are for subjects listed above)

Laboratorio da Ingeiero de Caminos, Canoles y Puertes, Madrid (Director: E. B. A. Miralles)—1.

Instituto Geologico Y Minero de Espana, Madrid (Director: D. Alfonso de Alvarado Medina)—2.

Laboratorio Del Transporte y Mecanic Del Suelo, Madrid, Centro de Estudios y Experimentacion de Obras Publicas (Director: D. Jose Luis Escario y Nunez del Piano; Chief, Soil Mechanics: D. Buenaventura Escaria Ubarri)—3.

Consejo Superior de Investigaciones Cientificas, Madrid, (Executive President: Jose Ibanez Martin)—4, 5.

Servicios Hidraulicos, Ministerio de Obras Publicos, Madrid—4, 5.

POLAND

1. Statistics on concrete structures

The research study of statistics on concrete structures would include a search of technical literature on unusual or outstanding concrete structures throughout the world, such as dams, tunnel linings, power houses, bridges, and modern buildings of special note because of their design or construction methods. Particular information for each structure would concern concrete quantities, test

methods, mix design and properties, concrete control, admixtures used, cement characteristics, aggregate composition, methods of placement, strength, susceptibility to cracking, and other pertinent characteristics.

The study would require extensive correspondence with engineering organizations responsible for the design and construction of the selected structures. Compilation of data obtained an appraisal of its value and a tabulation of its results would be studied.

2. Precast concrete forms for dam construction

This research would include an investigation of various type of joints and bonding procedures, involving simple unfinished surfaces, combined concrete and steel surfaces, and special formed surfaces. Laboratories tests would be made to determine the minimum required slab thickness and reinforcing for various types of concrete construction, using both simple and prestressed slabs. Structural strength, bonding characteristics and minimum thickness required to produce structural durability with the various types would be investigated.

This study will be directed toward developing the design of slab units which could be produced in large numbers for various applications with a minimum of materials, labor, and equipment.

3. Protective coatings survey of Eastern Europe

This research would include making a survey and a review of the available technical literature on coatings currently in use in eastern European countries. Experienced personnel would visit various installations and evaluate performance data on coatings for irrigation and other hydraulic structures. Discussions would be held with leading technical personnel in these countries to ascertain the basis for their selections.

The purpose of this program is to obtain basic information on the protective coating technology being employed in eastern European countries to compare these coating performances with those in our country for various exposure conditions. Considerable use of metalized coatings has been made in some of the eastern European countries. These and other coatings should be evaluated to provide information on the most durable coatings for exposure.

4. Settlement of structures

The research study on settlement of structures would require a review of present-day literature and preparation of the complete bibliography with abstracts in English, or translations as necessary. Some specific laboratory and field tests would be conducted at this stage.

A comparison would then be made between settlement tests of field structures or field models, laboratory tests, and theories to ascertain the degree of correlation. Laboratory tests would then be made to fill in any gaps and extend the present knowledge for design use.

5. Stream regimen and sediment transport

This research on the effects of the sediment transport and bed forms or channel roughness and stream regimen would include a literature search to obtain a complete background of information on studies conducted to date. A laboratory test program will be formulated to augment the existing knowledge on the subject. Field data would be obtained from rivers and earth canals and used to correlate and verify the results of the theoretical laboratory investigations.

6. Transport in pipes (sediment)

The research study on sediment transport in pipes would include a literature search to obtain a complete background of information on studies conducted to date. A theoretical analysis of this information would be made to determine the extent of the existing knowledge. A laboratory study will be formulated to obtain data that are lacking in the literature and to broaden the existing knowledge of the subject.

Research institutions and principal scientific personnel

Instytut Morski, Institut Maritime, Institut de Recherches Scientifiques, Gdansk—1.
Politechnika Warszawawska, University of Warsaw—3.
Krerownik Centralengolaboeratorium, Warsaw (Walenty Jarocki)—5, 6.

UNITED ARAB REPUBLIC (EGYPT)

1. Settlement of structures

The research study on settlement of structures would entail a review of present-day literature and preparation of a complete bibliography with abstracts in English, or translations as necessary. Some specific laboratory and field tests would be conducted at this stage.

A comparison would then be made between settlement tests of field structures or field models, laboratory tests, and theories, to ascertain the degree of correlation. Laboratory tests would then be made to fill in any gaps and extend the present knowledge for design use.

2. Corrosion of steel in hydraulic structures

This research would furnish basic information regarding methods used in the adjacent countries to control or reduce corrosion in hydraulic structures and to make known any new methods being used or tested. Particular note would be needed of the effectiveness of the various methods used and the circumstances existing at the installation. The study would concern various metal works exposed to fresh water and buried conditions. Chemical contents and properties of the corrosive materials would be studied.

3. Weed control (irrigation waterways)

This study would be directed toward discovering and identifying biological forms which in their life processes significantly effect the growth and survival of submersed aquatic weeds, specifically those commonly known as pond weeds. Promising biological control methods, and the life histories and the organisms' life histories and environmental association with the aquatic plants would be studied by application to available irrigation systems.

The survey of current literature and investigations would be made and findings correlated with the research results.

4. Sediment exclusion by guide vanes

This research would include a search of literature, compilation and analysis of existing data on the use of guide vanes as sediment evaluating devices, conducting laboratory tests to extend the existing knowledge, and the development of general criteria for the design of guide vanes. Knowledge obtained from this study will enable the evaluation and design of efficient sediment-excluding guide vanes for any given structure.

Following the literature survey a theoretical analysis of available information would be made to determine gaps in the current knowledge and to establish the extent of laboratory tests that are needed to complete the study. The tests would be directed toward establishing characteristics of surface and bottom guide vanes.

5. Pervious foundations for concrete dams

Many different methods of design of dams on pervious foundations have been utilized in both this and foreign countries. Because Asian and north African countries have had considerable experience in such structures, and since some of the more recent theories have been proposed by outstanding engineers from this area, information concerning dams on a pervious foundation in these countries would be very helpful.

Field tests would be conducted and the data analyzed. Particular information would be obtained regarding foundation performance under the actual applied loadings.

Research institutions and principal scientific personnel

(Numbers refer to subjects listed above)

National Research Center of Egypt, Cairo—1, 2, 3, 4, 5.
Cairo University—1, 2, 3, 4.
The Hydraulic Experiment and Research Station, Delta Barrage (Director: Dr. M. Gamel Mustafa)—4, 5.

YUGOSLAVIA

1. Precast concrete forms for dam construction

This research would include an investigation of various types of joints and bonding procedures, involving simple unfinished surfaces, combined concrete and steel surfaces, and special formed surfaces. Laboratory tests would be made to determine the minimum required slab thickness and reinforcing for various types

of concrete construction, using both simple and prestressed slabs. Structural strength, bonding characteristics, and minimum thickness required to produce structural durability with the various types would be investigated.

This study will be directed toward developing the design of slab units which could be produced in large numbers for various applications with a minimum of materials, labor, and equipment.

2. Measurement of rock properties in situ

The proposed research study of properties of rock in its natural state would consist of searching pertinent literature to compile information on work done throughout the world and to evaluate different methods of approach being used. Field sites representative of some of pressure tunnels to be constructed in the United States would be selected and jacking or hydrostatic pressure tests would be applied to cylindrical chambers carefully constructed to avoid damage to the rock by blasting. A comprehensive report, including a complete bibliography with abstracts in English would be produced from this study.

3. Effect of crystal orientation on rock strength

This research on the effect of crystal orientation on rock strength requires a literature study, an appraisal of the present knowledge of the subject and laboratory and field studies.

Laboratory and field tests would be made to obtain new data to integrate and extend the present knowledge so that it would be usable in the economical design and construction of foundations and tunnels. The laboratory and field investigations would be directed toward establishing the basic petrographic relationships and characteristics for rocks and their structural behavior in foundations and tunnels.

4. Density flows

This research would include a survey and review of existing technical literature on density currents. An analytical and laboratory test program would be undertaken to define flow pattern of selective withdrawal through relationship of velocity distribution and shear stress; to determine withdrawal levels of flow patterns that affect water evaporation temperature and quality; and to establish limiting factors from test facilities sufficiently large to indicate applicability to reservoirs and rivers. The investigation would be conducted and presented in a form such that the data would be applicable to other problems, including sedimentation, chemical processes, salt intrusions in estuaries, heat dissipation, and thermal powerplants.

5. Entrainment of air in conduit flows

This study would include a search of literature to determine the extent of present knowledge in this subject. Publications with significant data would be translated and abstracted in English.

Laboratory tests would be performed to determine the rate of rise of bubbles in water flowing at different velocities. The influence of velocity distribution and turbulence would be evaluated and methods of collecting and removing the entrained air developed.

6. Entrainment of air in open-channel flow

This research would include a study of literature to determine the status of present knowledge and laboratory tests to discover the mechanics by which air is entrained in channels of various widths, depths, and slopes. Field tests would be conducted to correlate and verify the results from laboratory analytical studies.

7. Aeration in shaft flows

This research on irrigation and shaft flows would require a search of technical literature, the preparation of a complete bibliography with abstracts in English, an appraisal of the information obtained, and laboratory tests and field observations to integrate and extend the data to make them useful for design.

The laboratory tests and field observations would be directed toward obtaining basic information regarding the mechanism of air entrainment, bubble size, bubble history, rate of rise in turbulence flows, effects on hydraulic equipment, methods and requirements for separation and venting, and methods of reducing air entrainment.

An analytical study would be made to correlate the findings of this program. The knowledge derived would enable a better evaluation of the extent and nature of probable air entrainment in proposed structures, the deleterious effects, if any, and methods for entrainment control and air-total separation.

8. Design and analysis of penstock branch connections

Penstock branch connections are statically indeterminate structures which present a number of problems in design. Among these are the determination of adequate beam depths and shell thicknesses.

Model and prototype testing programs would be undertaken to ascertain and verify the design assumptions. A determination of the effective curvature factors to be used in computing stresses and local stress concentration factors would be made.

A comprehensive research report, in English, would be prepared. Suggested methods of analysis and design assumptions would be given whereby an engineer might obtain more accurate analytical results.

9. Pressure tunnel linings

Some of the major considerations in the design of pressure tunnels are the head losses caused by friction in the tunnel and the manner in which the internal pressure loading is resisted.

Specific data on head losses in lined and unlined tunnels and the structural performance of tunnel linings would be obtained through a field testing program on existing installations. These data would be correlated with other available information and presented as charts or tables suitable for use in design.

A comprehensive report would be prepared in English, comparing the actual performance of lined and unlined pressure tunnels to the design requirements regarding the head losses in the tunnel and the structural performance of the lining.

Research institutions and principal scientific personnel

(Numbers are for subjects listed above)

Institut za Ispitivanje Materijala, Belgrade (the Institute for Material Testing), (Director: Mr. B. Zezelj)—1, 2, 3.

Hidraulichka Laboratorija, Beli Potok (Suburb of Belgrade) "Avala," (Director: Eng. D. Josimovich)—4, 5, 6, 7.

Vodogradbeni Laboratorij pri Tehniski Fakulteti, Univerze v Ljubljani (Director: Janko Bleiweis)—4, 5, 6, 7.

Hidrotehnicki Institut, "Ing. Jaroslav Cerni," Beograd (Director: Zivko Vladisavljevic)—4, 5, 6, 7, 8, 9.

REPORT OF BUDGET BUREAU ON USE OF FOREIGN CURRENCIES

Mr. DOMINY. I have here a report entitled "Foreign Currencies." It is a report to the Committee on Appropriations, U.S. Senate, on control over the use of foreign currencies prepared by the Bureau of the Budget, dated January 1960.

I call the committee's attention to a brief quote from this report:

> The bulk of the currency requirements for U.S. oversea operations is in seven countries where our receipts are insignificant. On the other hand, the bulk of receipts available for U.S. agency programs is in countries where normal requirements are relatively small. It is neither legally nor actually possible to shift large amounts of U.S.-held currencies from one country to another. Thus, surpluses in the areas of abundance cannot be used to meet needs in the areas of relative scarcity.

It is that situation that we are taking account of, and the research which we are proposing to carry out is in the countries where they have these large currency amounts beyond any possible needs of our oversea operations just as Mr. Andersen has pointed out.

We think this is a very supportable program to aid us and those countries by use of these currencies.

AUTHORITY FOR PROGRAM

Mr. TABER. Is this operation authorized by law?

Mr. DOMINY. Yes, sir.

Mr. TABER. Please give us a reference to the law which authorizes it.

Mr. BENNETT. Section 104–K of the Agricultural Trade Development and Assistance Act of 1954, as amended. Its citation is 7 U.S.C. 1704(k).

REASON FOR HAVING RESEARCH DONE OVERSEAS

Mr. CANNON. We hear continually of the superior character of the training the Bureau has in handling questions of water resources and facilities. I take for granted they are superior to any others in the world.

Why, then would we gain anything by letting people in countries such as India and Yugoslavia conduct at Government expense research which cannot possibly be superior to anything conducted by our own research specialists in this country?

Mr. DOMINY. As Mr. Bennett stated a moment ago, we are not prepared to state here that we think this research is of the nature that could not be performed as efficiently and to the same quality here as in these countries. But to do the amount of research in the United States that would be covered by this $4,957,000 would be undoubtedly much more expensive because of the price levels for personal services and materials in this country, and we are aware of the availability of currency credits already built up, and of the advice being given by people in a position to know that the credits in the countries in which we propose to do the work are far greater than could normally be used by U.S. regular oversea operations. They are in countries where irrigation is important, where the kind of thing we do is as important to the welfare of those countries as it is in the United States, and we believe we have made here a reasonable justification for the propriety of carrying out this program.

EMPLOYMENT OVERSEAS

Mr. CANNON. How many nationals of foreign countries will you employ in this program, Mr. Commissioner?

Mr. BENNETT. I do not think we can give a specific answer to the number of people. It will mean we will have to arrange contracts with the various research institutions, universities, and so forth available, and the number of people they will put on a particular job will, of course, depend on what they have available and who they have available.

We do know in each of these countries the kinds of institutions available and the particular people there to do the work, but the number of people they will put on will depend on the type and size of contract we negotiate with any one institution.

Mr. CANNON. When you have such an indefinite idea of the number of people required and exactly what they will do, how do you arrive at so definite a sum as you request here in the budget?

Mr. BENNETT. We arrive at this sum by our understanding of about what these kinds of things cost in order to reach some conclusion. We know that from the work we are doing ourselves.

For instance, we might negotiate with the Central Water and Power Research Station in Bombay, India, for a $25,000 contract covering

1 year. That kind of contract probably would not require over one full-time person and some advice from the director of the institution.

On the other hand, they may have adequate facilities there which we could negotiate a contract for $100,000 with that one institution.

These are things we have to explore and which can be explored only after we have funds available and can look into the matter in detail in the particular country and with the Embassy.

BASIS FOR ESTIMATES

Mr. CANNON. That being true how do you account for the fact you are able to break this down into such specific sums? Here for India, for example, you specify $198,500. You give everything but the cents.

Here in Pakistan it is $143,000. It is not $140,000 or $145,000 but $143,000.

Unless you have a more definite idea than you have given us here this morning, how can you work this out in such detail?

Mr. BENNETT. Partly because the moneys are related to the excess currencies which are available in the particular countries and partly because they are related to other programs by other Federal agencies.

I will certainly grant you the figures indicate a degree of accuracy which we probably will not attain. There is no question of that.

Mr. CANNON. You have observed a growing tendency, and that is especially true this year in all of our appropriations bills. All through the estimates there are requests from the Departments to send men abroad involving nice attractive trips with apparently no immediate direct or material effect upon the situation.

I think all of our subcommittees ought to be a little tighter on moneys for such purposes as this for which there is very little specification as to who is going, how many are going, and where they will go——

Mr. TABER. And what they will do after they get there. I am wondering if the Department could show us one specific thing under this program that this crowd would have to work on over there and what they might accomplish.

Mr. CANNON. It boils down, Mr. Taber, to what we can get out of this program that cannot be resolved either here or through correspondence.

We can achieve every result they are supposed to achieve so far as I can see either by our own people here in our own country, and these are people who are the best trained and most experienced in the world, or we can get it by asking those who already live there to report to us.

Mr. TABER. How can we go out and defend this proposition with what we have so far? I cannot see it.

GOVERNMENTWIDE APPROACH ON USE OF FOREIGN CURRENCIES

Mr. DOMINY. I wonder if the committee recognizes that this is a governmentwide approach which is set forth in the President's budget on pages 925 through 935 of the budget for fiscal year ending June 30, 1961.

This is a carefully worked out program to utilize the excess currencies in a manner which would be fruitful not only to the United States

in all of its activities but to aid these countries through utilization of these surplus currencies.

Mr. CANNON. Your justifications indicate that you will prepare bibliographies and take tours abroad.

Mr. DOMINY. We have assured you that this is not a program designed to send Bureau of Reclamation personnel abroad, that we would be utilizing these foreign credits to hire trained people in these countries to carry out specific research projects.

The only Reclamation employee travel that would be connected with this would be that necessary to supervise such a program and to help get it underway. That would take some travel abroad. It would not involve sending a group of scientists abroad to do it or anything of that sort.

Mr. KIRWAN. You just said it is a wellworked out program which is reflected in the Budget as a governmentwide approach.

That is no assurance that it is a justifiable program. We have just reviewed some proposed land acquisition items of the Park Service under the Interior bill which were approved by the Bureau of the Budget and which certainly did not make sense. Yet they cut some very important programs like soil conservation and weed control.

For example, there are 1,300,000 acres of Government land in the Everglades, and yet the Bureau of the Budget requested $450,000 to buy another 30,000 acres.

Mr. DOMINY. This is not an isolated program that the Bureau of Reclamation proposes participating in as a single agency. It is something involving——

Mr. TABER. Is every activity of the Government loaded up with a budget estimate of that character?

Mr. DOMINY. In this budget which the President has sent forward for your consideration in fiscal year 1961 the Legislative Branch of the Library of Congress has a proposed program of $2,666,000; the National Science Foundation, scientific information, has a program of $1,600,000.

The U.S. Information Agency has two proposals, one related to publications of $1,711,000 and another is for binational centers, $1,782,000.

There is a market development program under the Department of Agriculture for $13,622,000.

Agricultural fairs have a proposal under the Department of Agriculture for $1 million.

There is a utilization research proposal under the Department of Agriculture for $3,090,000.

There is a research item under the same section of the law that we would be operating under, for the Department of Agriculture for $12,041,000.

The Department of Commerce has a research program under this same section of law for $5 million.

The Department of Defense, military housing, has $9 million.

The Department of Health, Education, and Welfare has a research item of $4,693,000.

The Department of the Interior, Bureau of Reclamation, research item, $4,957,000.

For the Department of State, buildings, $4,850,000.

Educational and cultural development, Department of State, under this same section of law, $750,000.

State Department educational exchange shows $970,000.
State Department American-sponsored schools shows $3,764,000.
State Department workshops shows $1,476,000.
The total program is $72,973,000.

Mr. CANNON. The gentleman from New York will recall that we have just thrown a similar item out of the Commerce bill.

In this connection, we are told here in the justifications that this money is to be used for the preparation of bibliographies on scientific subjects of interest to the Bureau, technical study tours by Bureau employees, and attendance at international scientific meetings.

We have the greatest library in the world here in addition to unusually complete libraries in the Department.

It is difficult to see why we should provide special funds for that purpose when we already have the personnel and facilities under the present setup.

Mr. JENSEN. That big long list you have just read, Mr. Dominy, of expenditures by those many different agencies of our Government in foreign countries is in addition to our so-called mutual aid program, is it not?

Mr. DOMINY. These expenditures, Mr. Jensen, would be made from currency credits available to the United States only to be expended in the country where the credit is.

Mr. JENSEN. So it is in addition to the possible $4 billion which the President is requesting for fiscal year 1961. That list of expenditures would be in addition to the regular foreign aid expenditures?

Mr. DOMINY. But expenditures to be made from a foreign credit which is there by reason of surplus commodity sales and cannot be used unless used in that country.

I think the matter——

Mr. JENSEN. Cannot be used?

Mr. DOMINY. No, sir. They are available only if expended in that country where the credit is, so I think the question before the committee boils down, if I may say so, to whether there is another use of these funds that you consider more equitable and desirable and of greater interest and benefit to the United States and to the country than what we have proposed.

The money is lying there and it is not available unless utilized.

Mr. JENSEN. I opposed that legislation when it was introduced in the House, as did many others, but it was passed, and from what you say there is nothing we can do about it now except let them have this money, but I can only say for the record that I certainly think we are getting outselves so involved in the business of all these foreign governments that we will never be able to pull away from this great responsibility, that we have accepted and which we are getting into deeper and deeper every year.

(Discussion held off the record.)

AVAILABILITY OF EXCESS CURRENCY

Mr. JENSEN. Do I understand that you have made these allocations commensurate with the Public Law 480 money which is available in each one of these countries, India, Israel, Pakistan, Egypt, Yugoslavia, Poland?

Mr. BENNETT. With the one exception of Spain, Mr. Jensen. We are told that at the present time in Spain there are none of these excess funds. They have what they call nonexcess funds in Spain, and the appropriation language which is proposed for this item would have to be such as to permit the purchase in Spain of so-called nonexcess currencies.

In the other countries the moneys at the present time are all excess and are available for only those purposes.

USE OF FOREIGN CURRENCIES FOR OTHER THAN RESEARCH PURPOSES

Mr. JENSEN. In at least India, Pakistan, Poland, and Egypt there is a great need for more food.

Would it be possible to distribute this money to furnish more food to these people? After all, you know, I feel that the greatest contribution that we make to any nation abroad is the food we give them, medicines, doctors and nurses we furnish, and the clothing which we put on the backs of ragged people. We know that to be a fact after traveling to some of these nations.

Mr. Andersen and I have visited India, Israel, Pakistan, Spain, and Egypt. I am sure Mr. Andersen will agree that the greatest need of all those nations are those things.

Mr. ANDERSEN. Certainly I could not disagree with you on that particular premise.

Mr. JENSEN. All right.

Mr. ANDERSEN. I would have to add a little bit.

ADVISABILITY OF SPENDING FOREIGN CURRENCY

Here in the first place we have so-called scrip already obtained in these foreign countries by our sending food to those countries through Commodity Credit Corporation.

I maintain that perhaps this scrip may not be worth the paper it is written on to us because we will get generous with these people and tell them we will discharge their obligation to us relative to perhaps $100 million worth of scrip, for example, in India. I anticipate that some day we will be called upon to let them have it back.

I simply maintain this: If these gentlemen, or any agency of Government, can find a meritorious place to spend some of these counterpart funds already generated and already in our possession, it is simply a bookkeeping transaction between the Treasury and the Commodity Credit Corporation.

I maintain if some good can be done for our people through research as proposed here then it is a good proposition.

NEED FOR MORE SPECIFIC INFORMATION ON USE OF FUNDS

To me these gentlemen would have to become more specific in what they want to do relative to these funds, and I would suggest they present to this committee later on, perhaps for inclusion in supplementals, items of this nature after further detailed specifications are brought out as to what exactly in the line of research they will do.

Mr. CANNON. And in this connection will you also give us the number of personnel, engineers and technicians, we already have there under the technical aid program?

Mr. ANDERSEN. We will have this same proposition in perhaps 10 different appropriations bills.

I should think we should require that of every agency involved.

Mr. CANNON. You are right about that.

Mr. ANDERSEN. Let us know what you are doing. I certainly do not want to waste any kind of money. If they can show me where they can do some good for our own people, and incidentally for other people abroad through the expenditure of this scrip, I am for it.

I do not really think, gentlemen, that you have made a case here this morning so far in specific recommendations as to what you will do with these funds, but the principle involved looks good.

Mr. DOMINY. Part of the problem there, Mr. Andersen, is that without having these funds available we do not have funds to expend on working out a carefully detailed program.

Mr. ANDERSEN. You do not feel today that without the actual turning over to you of these funds in the line of scrip that you really should involve yourself in the labor of going into detail relative to what lines of research shall be carried out or what contracts will be entered into?

Mr. DOMINY. That is exactly right.

Mr. ANDERSEN. Is there any reason why you could not have better answers to this 2 or 3 months from now?

Mr. DOMINY. The only money I have available to develop specific research projects for each of these countries proposed would be reimbursable reclamation funds, and this I do not feel I can spend for this purpose.

We are confident from the knowledge we already have, from checking with the ICA and the State Department and other agencies, that the kind of proposal we have outlined here in generalities is something that could be developed into a specific program of value.

Mr. ANDERSEN. I agree with you there are good possibilities but I would suggest we take that line of approach on this, Mr. Chairman.

Mr. CANNON. I am in thorough agreement with the gentleman.

Mr. JENSEN. Are we duty bound by law to expend this money?

Mr. CANNON. That is the very question I would like to comment on if the gentleman will permit.

Mr. ANDERSEN. All right.

ADVISABILITY OF SPENDING FOREIGN CURRENCIES

Mr. CANNON. We have in these countries large embassies, legations, and military facilities with all of the accompanying activities which are provided through many of our bills.

These are a continual drag on us. If we go ahead and spend all this scrip right now, the day may come when we will need it.

I realize it burns holes in our pockets, but the day may come when in connection with our existing establishments, which are a large annual charge upon the Treasury, we can use this scrip from time to time. At least some of it should be kept in reserve.

Mr. ANDERSEN. It seems, Mr. Chairman, the time has arrived when if we have a few dollars held by some agency or any agency of Government over and above what that agency is authorized to spend, then a request is made to this Appropriations Committee to spend that money. Has the time come when it is a crime or a criminal act

on the part of this Government to try to save a little money here and there wherever we can?

That may sound like a rather facetious statement but that is just about where we have come. It seems there is a move afoot by many people, and I am certainly not accusing Mr. Dominy and his people of acting thusly, but it seems in every agency there is some move afoot and someone who lies awake nights to try to figure out how they can bankrupt America.

Mr. TABER. Has the chairman's attention been called to the fact that this was an open end appropriation proposed to be available until expended?

I want to call attention to this fact: That if we get to cutting this kind of caper we will have a renewal of that crazy bill H.R. 8002 that we had on our hands a couple years ago. I do not like to see us get into that vulnerable position.

Mr. CANNON. It would be inviting, certainly.

Mr. TABER. It certainly would be inviting trouble.

Mr. DOMINY. Mr. Chairman, I would like to clear up one problem.

Mr. CANNON. Mr. Commissioner.

OVERSEAS TECHNICIANS

Mr. DOMINY. You asked for a tabulation of technicians overseas. The Bureau of Reclamation has technicians overseas in only two countries, and there only because the State Department has specifically asked us to operate in some critical areas dealing with important water resource development projects.

Mr. CANNON. You refer to the Bureau of Reclamation?

Mr. DOMINY. Yes, sir.

Mr. CANNON. But you are not referring to other agencies.

Mr. DOMINY. That is right, sir. Do you want the Bureau of Reclamation to get that material from ICA and all the agencies of Agriculture and everywhere? I hardly think that is a request you would want me to pursue.

Mr. CANNON. We will ask you only to give us information regarding your own Bureau and for only the last 2 years.

Include in that, transfers to the ICA payrolls.

Mr. DOMINY. We have a number of our technicians transferred to the ICA payroll. Very good, sir. We will prepare that information.

(The information requested follows:)

Number of engineers and technicians, including those transferred to ICA, who are now in countries where proposed foreign currency research is to be conducted, or who have been in these countries during the past 2 years

	At present	Previously, during past 2 years
India	1	9
Pakistan	5	2
Poland		
Spain		
Egypt	(1)	
Yugoslavia		1
Israel		

[1] In process.

Mr. JENSEN. Off the record.
(Discussion held off the record.)

NONEXCESS CURRENCIES

Mr. BENNETT. There is a table on page 931 of the Budget listing countries which have nonexcess currencies. You find Brazil, for example, Ecuador, Colombia, Mexico, Peru, Uruguay, which are Central and South American countries.

Mr. JENSEN. We had a problem in Peru. They misused those Public Law 480 funds no end. They were building a grand highway along the coast and through the big cities, a beautiful highway, and were building no access roads which the peasants could use to pull their carts in order to bring their food and produce down. The Communists used this to their advantage.

They said "When we get in we will not spend money to build roads for the millionaires. We will spend money to build roads for you peasants out here so you can get your produce in town."

(Discussion held off the record.)

DOLLARS APPROPRIATED TO PURCHASE FOREIGN CURRENCIES

Mr. PILLION. As I understand this program, the appropriation requested this year under the main program is $4,957,000.

Mr. DOMINY. That is right, sir.

Mr. PILLION. In addition to that, on page 54 you have $100,000 requested.

Mr. DOMINY. Yes, sir.

Mr. PILLION. That is for support here in the United States.

Mr. DOMINY. That is the 3-year program for U.S. requirements, yes, sir.

Mr. PILLION. The total amount requested is $5,057,000.

Mr. GOLZE. $5,057,000; yes, sir.

Mr. PILLION. Regardless of whether this is spent in dollars or zlotys or dinars or whatever foreign currency is used, this $4,957,000 plus the $100,000 will come out of the General Treasury, is that right?

Mr. DOMINY. Yes, sir, except that I have pointed out that the $4,957,000 is already available by reason of expenditures already made in terms of foreign shipments of produce.

Mr. PILLION. The foreign currency is available.

Mr. DOMINY. Yes, sir.

DOLLARS APPROPRIATED TO BE PAID TO COMMODITY CREDIT CORPORATION

Mr. PILLION. But the dollars are not available. So it will come out of the Treasury and it will be paid into the Federal Commodity Credit Corporation.

Mr. DOMINY. I am sorry, Mr. Pillion, but the dollars will be appropriated whether used by us or not. They have to be appropriated to Commodity Credit to cover these foreign shipments if not approved for such uses as we here propose.

Mr. PILLION. No, they will not. That is the question. You are appropriating it here now, and whether it will be appropriated later

to Federal Commodity Credit Corporation is another matter. It is appropriated here. It does not have to be appropriated there. It is a separate and distinct appropriation, is that not true?

(Off the record.)

Mr. PILLION. It all depends on how you look at it. Actually this is dollars coming out of the Federal Treasury to be paid over to the Commodity Credit Corporation for use to repay its losses or to buy new wheat and then sell it again. It just expands it. It is another way of doing it. You are making a foreign aid agency out of every department. That is what is happening here. You have valueless currency, so you are spreading it around to different departments so they can spend it in the foreign countries for purposes which may or may not be justified. That is what I am getting at.

Mr. DOMINY. I am in disagreement with that statement only to this extent, Congressman Pillion: that the money will be required for appropriation under the existing acts whether it is earmarked here for our use or not.

GOVERNMENT-WIDE PROPOSAL TO SPEND FOREIGN CURRENCIES

Mr. PILLION. I assume from the long list read here, amounting to $73 million for similar programs in the other departments, that this idea did not originate with the Department of the Interior. Is that correct?

Mr. DOMINY. As I understand it, it is an administration-wide proposal to put these foreign currencies to use—to realize value from credits already available or anticipated.

Mr. PILLION. That is right. The Budget Bureau said to your department, "We have excess blocked currencies in these various countries. You work up a program so you can spend it." Based upon that request you worked up this program, this very general, very vague, indefinite program. Is that about it? Is that generally the situation?

Mr. DOMINY. I think it is a much more businesslike approach than characterized by your statement, Congressman Pillion.

Mr. PILLION. Just very roughly.

Mr. DOMINY. I would like to give you a copy of this report. This was a carefully worked out report by the Bureau of the Budget to the Senate committee, and does propose a more orderly procedure for the utilization of these excess currency credits than had theretofore been available.

Mr. PILLION. That is nice language, I agree. I understand the Commissioner's position, and I sympathize with it. I sympathize with the situation which I find the Commissioner and the Bureau in.

Mr. ANDERSEN. Will you yield for me to correct Mr. Dominy?

Mr. PILLION. I am so convinced that if we continue this type of thinking this Nation does not deserve to survive. If we continue this impractical, pie-in-the-sky, wholly unrealistic thinking, this Nation should not survive. It does not deserve it. That is why I want to place on the record this operation, to see exactly how it works.

DOLLAR APPROPRIATION REQUIRED TO RESTORE CAPITAL OF COMMODITY CREDIT CORPORATION

Mr. ANDERSEN. Mr. Pillion, just to correct Mr. Dominy to a certain extent. Mr. Dominy, you said this would mean no actual expenditure whatsoever because it would otherwise be repaid to Commodity Credit in restoring its capital impairment. You made some such statement.

Mr. DOMINY. Yes. My statement was I understand, whether it is appropriated here to us——

Mr. ANDERSEN. I think you are absolutely correct to that point, but this would be an actual appropriation in dollars if the Congress decided not to go ahead with its commitments to Commodity Credit and to the farmers of America. In other words, if the Congress at this time decides we shall not restore the capital impairment of Commodity Credit Corporation in full, then this becomes an actual charge against the Treasury, gentlemen, because this is in reality a bookkeeping transaction in behalf of Commodity Credit capital. Do you see what I mean, Mr. Taber?

Mr. TABER. You mean if we peddle this currency out, that impairs the capital of Commodity Credit?

Mr. ANDERSEN. No, sir. If we give this appropriation in this case, it is not an appropriation unless the Congress decides not to restore the capital impairment of Commodity Credit in full.

Mr. TABER. I do not think it makes the slightest difference. You have this currency and it is no good.

Mr. ANDERSEN. It is practically worthless from out standpoint.

Mr. TABER. How you can impair the capital of the Commodity Credit by getting rid of something that is no good, I do not know.

Mr. PILLION. May I proceed?

Mr. TABER. Yes.

PURPOSE OF PUBLIC LAW 480

Mr. PILLION. These funds have accumulated as a result of the original law, Public Law 480.

Mr. DOMINY. Yes, sir. They have accumulated as a result of that act.

Mr. PILLION. We have sold surplus agricultural commodities for blocked currencies. I am not satisfied with the answers to Mr. Taber's questions about the authority of the department to engage in this foreign aid program.

First of all, the original act provided the President is authorized to sell surplus agricultural products for foreign currencies to friendly nations. It further defined that the friendly nation means any country other than the U.S.S.R. or any nation or area dominated or controlled by the foreign government controlling the world Communist movement.

Under that original definition, the original purpose of Public Law 480 would have excluded Poland, because Poland certainly is dominated and controlled by a foreign government that is controlling the world Communist movement, which is the U.S.S.R. primarily throughout the world; secondly, Red China in the Asiatic and Mideast countries. So this program violates the original purpose of Public

Law 480. This law was not intended to build up the power and the strength of the Soviet. Yet that is what it has now been turned around to do.

Many of the Polish people have a great sympathy for the United States, but that is neither here nor there. The power and the control of the military, the economy and the politics of Poland is in the U.S.S.R.

As we aid Poland, we are aiding the military strength of the U.S.S.R. and her economy, no matter how you look at it.

So the original purpose of this law is being defeated and the security of this country is being impaired by a program which helps the political situation of the Soviet and helps her economy.

In the original act the funds were to be used to develop markets abroad for agricultural products. I have here a listing of the various purposes. In none of those purposes do I find the language used in the justifications on page 66—to collect, collate, translate, abstract and disseminate scientific research and scientific and technological information. So I assume that was added by an amendment later to the law.

Mr. DOMINY. Yes, section 104(k), title I.

RESEARCH ACTIVITIES CONTEMPLATED

Mr. PILLION. Under your technical assistance program you send your scientific men or engineers to countries to aid the development of the countries. That is the primary purpose. As I understand it, the purpose of the program is to have foreign engineers and scientists undertake certain work, not for the benefit of those countries, but for the benefit of this country. Is my understanding correct?

Mr. DOMINY. That is primarily the purpose of the program, although certainly the gathering of this research would be of value to their country as well, and would be available to them even though it was being done under a program designed by us to give us additional information which we think would be valuable in our program.

Mr. PILLION. For instance, the question of adding jute to concrete for the purpose of lining canals. Is that of any particular value to this country?

Mr. DOMINY. Indeed it is. A low-cost canal lining program is one of the greatest needs in developing irrigation in the West at the moment. We have been doing a good deal of research on that for years here.

Mr. PILLION. It can be done here. You have laboratories and technicians who are familiar with the work in the country, have you not?

Mr. DOMINY. Yes, sir. The money we spend here, however, is a reimbursable fund which must be allocated back to the project and be paid for by the power and water users.

Mr. PILLION. You can bring jute here very easily. It is not a commodity which is hard to ship, is it?

Mr. DOMINY. No, sir. It is a matter of financing. If we use these credits already available, it is not reimbursable and is not a burden on our projects.

Mr. PILLION. Are you using jute now in any of your work for lining canals?

Mr. DOMINY. I do not know whether we have undertaken any research on that element in our low-cost canal lining research programs or not.

Mr. PILLION. In what countries is it being used? Where do you have a large operation?

Mr. DOMINY. We do not think it is widely used now. That is why we want research on it to see if it would be feasible to use to reduce lining costs.

Mr. PILLION. Why not use silk or banana peels or anything else? Why jute? Why this particular thing? Why do we not use excess cotton?

Mr. DOMINY. We are interested, of course, in finding a material within economic reach of the job to be done, and the lower we can keep the costs of our lining and still have quality——

Mr. PILLION. We have pretty close to a billion dollars worth of blocked currencies, and we do not know what to do with them. So we have this very vague program that your Department is not able to tie down or specify to any reasonable degree. Why would it not be better if we sold some of this blocked currency to the many tourists and people who go to these countries, instead of letting them buy it on the open market where the dollars eventually get to Poland or some other country? Under our agreements, I suppose that is not permissible. Is that right?

Mr. ANDERSEN. That is correct.

(Off the record.)

Mr. PILLION. On page 67, the very first sentence is this:

> A summary of the amounts proposed to be used in fiscal year 1961, and general fields within which specific projects might be undertaken, are as follows.

That is pretty vague, indefinite language. It just seems impractical to appropriate $5 million for a project which has no specific objective, no element of assured return for this country. It appears to be merely a device for our country to get rid of the blocked currencies in any way it can so it will have more room to sell more surplus agricultural products in order to accumulate more valueless foreign currencies. In plain language, that is just what we are doing in this program.

You propose a study of evaporation of surface waters. Your Department has had that under study for many years, has it not?

Mr. DOMINY. Yes, sir.

Mr. PILLION. You have had the technicians, the professors, scientists, engineers, who have studied the evaporation of waters in reservoirs for many years. Now India, to whom some of this money is to be allocated, does not have anywhere near the experience that we have. Who in India is able to teach us anything about water evaporation?

Mr. DOMINY. As a matter of fact, Mr. Pillion, the people of India have been irrigating far longer than we and actually are irrigating far greater acreage than we in the United States. They do have some tremendously large reservoirs and are extremely interested in evaporation control.

Israel is another country where they have done a lot of work already in evaporation control studies.

Mr. PILLION. It is all available to us. All we have to do is go there, send one or two men to talk to their technicians. We do not need $5 million for that.

Mr. DOMINY. It is available to us. We think that because of their progress and knowledge, every research project financed by these funds available to the United States would advance the work considerably.

Mr. PILLION. Atmospheric conditions in these countries are different than they are in the United States, are they?

Mr. DOMINY. To some extent, yes. We do not have any monsoon-type weather, of course.

Mr. PILLION. Here is money for use to study the mechanics of different types of soils. We have been studying that for 50 years, have we not?

Mr. DOMINY. Yes, sir, through practical application of our work. We have done little basic research because of the fact that we have to do it on a reimbursable basis.

Mr. PILLION. Studies in weed control. We are doing that here all the time. We are far ahead in weed control of any country I know of, are we not?

Mr. DOMINY. We are operating practical demonstrations of the available chemicals and materials in the control of weeds. However, again I must say there has been little basic research in the control of aquatic weeds, which is the bane of operating irrigation systems.

Mr. PILLION. Who in Spain can use $98,500 to study the properties of expansive clays? We have every common type of clay soil here, which expands and contracts rapidly with the moisture content. Why do we have to have the Spanish people study the 50-percent expansion and contraction of clays? We have had all kinds of experience with clays in this country. The "Agricultural Yearbook on Soils" will give you practically a complete résumé of all the properties of clay that are known in the world.

The measurement of rock properties. All types of rocks. The study of rock in the area that you want to build in. You have a certain place you want to build. Just study the properties of that particular rock, the stresses and strains and strength and all the properties of the rock. If you study a rock in India, it does not mean very much unless you study the rock that you are going to build on.

I recently came across an article written in the Buffalo Evening News, Saturday, February 27. The heading of that article is: "U.S. Backs Into a Corner With Surplus Food Exports—Shipments Tending to Foster Population Increases That Could Not Be Sustained if the Supply Were Suddenly Stopped."

The article goes on to tell that the shipment of food by this country to various foreign countries has created a dependency by these countries upon the United States and that, as a result, they are enjoying a higher standard of living than they otherwise would enjoy, which has caused them to increase their populations, and that means they are growing more and more dependent upon the United States for a continuation of the flow of these foods to these countries, and that as we do that we make the problem worse in that we cannot then afford to cut off this continuous supply of our agricultural products to these countries. Instead of compelling these countries either to furnish enough food for their population or to do something about their population increase we are doing the reverse—we are encouraging the situation where they do not meet the problem themselves, but are growingly dependent upon us.

This program encourages that very same thing. Instead of giving it to these people when they have a famine, we are making a program of it which we shall not be able to cut off, because then we would be accused of starving them. We will then be starving them instead of their starving themselves. Do you follow me, Commissioner?

Mr. DOMINY. Yes, sir, I understand what you are saying and your general approach.

Mr. PILLION. When I look at this program, all I can say is that it certainly does not belong here. It is a program which should not be continued, and I hope this committee will completely take these funds out of this appropriation. I thank you, Mr. Chairman.

Mr. JENSEN. Mr. Chairman.

Mr. CANNON. Mr. Jensen.

OTHER USES FOR FOREIGN CURRENCIES

Mr. JENSEN. No matter where you go around this world, wherever you find a cold war existing, there you will find starving people. Why? Because they forgot many years ago that their soil would wear out and blow away and wash away—until now the production of their soil has reached the point that it will not produce even half as much food as the people in those areas should eat.

That is especially true of the Middle East—Lebanon, Syria, Jordan, Israel. We were there. We saw the problem. We asked our people over there who were spending our money for everything you can think of, except trying to get water for those folks, why they did not dig more deep wells for those people. Especially in Jordan, their reply was that there was no water to be had underground.

We were on our way to Jericho—Mr. Andersen will bear me out in this—and before we got to Jericho we saw a big green spot. We said, "What is that?" Our guides said, "A preacher moved out here a few years ago and found water." We asked how many acres were being irrigated, and were told 1,800 acres. Another well was being dug beside the road. We said, "You just told us back about 10 miles that there was no water to be had underground here in this desert area." Our guides said, "Well, this fellow was lucky."

We asked them if they had done any prospecting for water, and they said "No". They said a couple of years ago they had asked for some prospecting equipment in their requisitions, but had never received it.

Is that right Mr. Andersen?

Mr. ANDERSEN. You are absolutely correct in all the details, Mr. Jensen.

Mr. JENSEN. In that year, 1953, we had given the three Arab nations, Lebanon, Syria, and Jordan, $100 million, and Israel $100 million, to develop and dam up the waters of the Jordan. They were in a great hassle because they were accusing each other of diverting the water from the Jordan in violation of the agreement which they had made. We listened to the three Arab countries and they were mad at Israel, and Israel was mad at the Arab countries. They were fighting across the Jordan. They were killing each other. They were having a big time.

We then cabled the President and asked him to withhold all funds until they lived up to their agreement, which he did. Finally, an

agreement was reached, and now they are spending the money we gave them to dam up the waters of the Jordan. But that water will irrigate possibly only 1 percent of the area that needs irrigation.

We then went to India, and there we found that we were giving India sufficient funds to dig 2,650 deep wells. Theretofore, about all the irrigation India had was done by the Persian lift system, by which a camel or a bison would go round and round and raise the water up from a well and irrigate about 4 acres. Each of the wells we were digging would irrigate something in the neighborhood of 500 acres. We were really doing something for India.

We had a meeting with Nehru for 55 minutes the day before we left, and I guess he appreciated the efforts we were making over there.

The point I want to make is that in nearly every nation in which a cold war is going on against the West, and even in some of the nations with the West, there is a water problem which is most severe. If we really wanted to do something for those countries which you have listed here—India, Israel, Pakistan, Spain, and Egypt—then we should use this money to help them find water and to help them dig wells to get sufficient irrigation or to get more irrigation so they can more nearly feed themselves.

You may say, "They are our customers for food, feed, and fiber." Surely, they are, but if we can help them bring up their economy, that is the way to do it and do it fast.

Mr. PILLION. To help themselves.

Mr. JENSEN. Then they can help themselves, and they will finally become better customers of ours.

Mr. PILLION. I agree with you.

Mr. JENSEN. Now, Mr. Commissioner, I hope you will investigate the water problems of every one of these nations. I am sure you will come up with the answer. I am sure you will then say we had best spend this money in most of these nations listed, trying to help them get water, which is liquid gold to those folks, as it is to our desert area of the United States.

Does the gentleman agree with my statement?

Mr. ANDERSEN. I agree with everything you had to say, Mr. Jensen, except as to the jurisdiction of these particular people to accomplish that abroad.

Mr. JENSEN. Why can't they?

Mr. ANDERSEN. They are asking of us authority for utilization of those scrip funds to go into research, to do research as provided by law for the good of our own people here mainly.

Mr. JENSEN. All right, let them go into research to find the water. It is very simple.

Mr. ANDERSEN. I agree with you, Mr. Jensen, but ICA would have to perform the work.

Mr. JENSEN. I do not care how they do it, but that is where we should be spending money, not only this money but a great share of the money we spend for mutual aid.

Mr. ANDERSEN. You are absolutely right when you say water is the one big subject over there. Water is liquid gold, gentlemen.

Mr. PILLION. I might say that I am in complete accord with the gentleman's objective and his statement. I think the prestige of this country would rise a great deal if we took the attitude the gentleman has expressed, that of not wasting these funds but of trying to bring about solid progress which will help these people to help themselves.

Mr. CANNON. I am very much interested in what the gentleman says about finding in Israel or Lebanon isolated areas which artesian wells have rehabilitated and which are now green spots on the desert.

Some years ago some enterprising citizens sank artesian wells in the desert in Arizona and New Mexico. They found this land particularly productive. All that was necessary was to add water and it bloomed and blossomed like a rose.

They thought they had solved the problem. Out there, completely surrounded by desert sand, was this lovely oasis with its lawns, fruits, flowers, vegetables and everything that could be desired.

But suddenly the water supply failed. These deep subterranean reservoirs from which the water was being drawn contained water which had been accumulated through a thousand years.

Mr. JENSEN. Of course, that is a chance you have to take.

Mr. CANNON. But the reservoirs were exhaustible. The artesian wells ran dry and the country went back to dry, brown, sandy desert. Everything that had been invested was lost.

Is it possible that was true in the area which you observed? Did you have an opportunity to inquire as to how long the system had been in operation?

Mr. JENSEN. Three years. The wells were flowing strong.

Mr. CANNON. You had no reason to believe that possibly in the course of time the subterranean reservoirs might be exhausted and it would go back to the desert?

Mr. JENSEN. It is beyond my knowledge, of course, to answer that.

(Off the record.)

Mr. CANNON. We will adjourn until 2 p.m.

Construction and Rehabilitation

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Advance planning	$360,659	$164,142	$254,000
2. Gila project, Arizona	379,567	3,432,003	4,219,000
3. Colorado River front work and levee system, Arizona-California	168,089	483,411	769,500
4. Boulder Canyon project, Arizona-Nevada	376,266	2,827,524	2,857,000
5. Central Valley project, California	42,758,779	43,525,613	61,306,100
6. Collbran project, Colorado	3,574,332	4,453,965	5,140,000
7. Minidoka project, North Side pumping division, Idaho	351,435	865,523	429,000
8. Palisades project, Burns Creek Dam and powerplant, Idaho			487,500
9. Huntley project, Montana	184,823		
10. Washoe project, Nevada-California	459,170	1,019,580	3,137,000
11. McMillan Delta project, New Mexico	62,132	268,368	100,000
12. Middle Rio Grande project, New Mexico	2,863,232	1,991,595	1,729,000
13. Washita Basin project, Oklahoma	7,912,658	9,938,748	6,960,000
14. Crooked River project, Oregon	1,826,609	2,809,700	2,235,000
15. Rogue River Basin project, Talent division, Oregon	8,348,000	2,679,093	2,450,000
16. Vale project, Bully Creek extension, Oregon			173,000
17. Klamath project, Oregon-California	235,759	611,083	868,000
18. Lower Rio Grande rehabilitation project, LaFeria division, Texas			500,000
19. Lower Rio Grande rehabilitation project, Mercedes division, Texas	445,283	1,467,217	2,500,000
20. San Angelo project, Texas	370,974	4,139,026	11,000,000
21. Provo River project, Utah	278,547	881,200	825,000
22. Weber Basin project, Utah	5,673,787	5,805,083	8,283,000
23. Chief Joseph Dam project, Greater Wenatchee division, Washington		414,375	2,000,000
24. Columbia Basin project, Washington	9,943,418	7,824,845	6,100,000
25. Drainage and minor construction	16,047,536	6,057,465	927,120
26. Rehabilitation and betterment of existing projects	2,571,796	3,483,223	3,735,750
27. Missouri River Basin:			
(*a*) Ainsworth unit, Nebraska	598,096	136,932	1,500,000
(*b*) Almena unit, Kansas			1,000,000
(*c*) Bostwick division, Nebraska-Kansas	1,813,387	2,176,320	821,000
(*d*) Cedar Bluff unit, Kansas	27,044	333,618	1,400,000
(*e*) East Bench unit, Montana		500,000	2,800,000
(*f*) Farwell unit, Nebraska	603,590	3,016,410	7,700,000
(*g*) Frenchman-Cambridge division, Nebraska	3,533,132	4,070,884	5,439,000
(*h*) Glendo unit, Wyoming	9,512,217	2,620,531	775,280
(*i*) Helena Valley unit, Montana	2,626,224	2,157,452	565,000
(*j*) Owl Creek unit, Wyoming	1,187,234	1,000,075	455,000
(*k*) Transmission division (includes Fort Peck project)	11,092,704	18,132,046	24,415,000
(*l*) Webster unit, Kansas	1,208,054	2,830,187	617,000
(*m*) Yellowtail unit, Montana-Wyoming	2,500,000	15,000	2,500,000
(*n*) Drainage and minor construction	758,008	1,049,175	598,000
(*o*) Investigations	821,780	866,419	716,993
(*p*) Advance planning	1,352,475	1,137,400	1,283,007
Subtotal, Missouri River Basin, Bureau of Reclamation	37,633,945	40,042,449	52,585,280
(*q*) Other Department of the Interior agencies	2,360,995	2,648,436	3,000,000
Total, Missouri River Basin	39,994,940	42,690,885	55,585,280
28. Prior year balances of advances to chief engineer, Denver, Colo., and centralized project activities in the regional offices	−1,219,738	1,579,593	
29. Undistributed reduction based on anticipated delays		−7,675,342	−10,000,000
Total program (obligations)	143,968,053	141,737,918	174,570,250
Financing:			
Comparative transfers from (−) other accounts	−360,659	−164,142	
Unobligated balance brought forward	−7,670,693	−9,792,663	−824,128
Unobligated balance transferred to "Loan program" (72 Stat. 1576)	419,318		
Recovery of prior year obligations	−133,682	−139,070	
Unobligated balance carried forward	9,792,663	824,128	203,878
New obligational authority	146,015,000	132,466,171	173,950,000
New obligational authority:			
Reclamation fund, special fund	85,000,000	95,000,000	90,000,000
General fund	61,015,000	37,466,171	83,950,000
Appropriation	146,015,000	132,466,171	173,950,000

Object classification

	1959 actual	1960 estimate	1961 estimate
BUREAU OF RECLAMATION			
Total number of permanent positions	$4,397	$4,329	$4,210
Full-time equivalent of all other positions	115	113	99
Average number of all employees	3,972	3,949	3,894
Number of employees at end of year	3,962	3,922	3,855
Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
Average salary of ungraded positions	$5,228	$5,412	$5,481
01 Personal services:			
Permanent positions	$23,516,650	$23,700,908	$23,421,758
Positions other than permanent	475,732	460,862	402,601
Other personal services	606,185	673,222	580,788
Total personal services	24,598,567	24,834,992	24,405,147
02 Travel	831,318	834,681	809,071
03 Transportation of things	238,363	213,532	234,222
04 Communication services	289,895	282,379	263,134
05 Rents and utility services	196,164	226,747	200,377
06 Printing and reproduction	132,481	198,938	169,254
07 Other contractual services	3,290,491	3,578,649	5,217,071
Services performed by other agencies	937,969	888,819	945,814
08 Supplies and materials	1,933,868	2,588,004	4,070,295
09 Equipment	968,228	1,697,699	1,486,638
10 Lands and structures	106,718,102	102,223,024	132,207,854
11 Grants, subsidies, and contributions	1,557,995	1,581,871	1,566,332
13 Refunds, awards, and indemnities	118,212	108,470	139,340
15 Taxes and assessments	27,948	27,954	32,186
Subtotal	141,839,601	139,285,759	171,746,735
Deduct quarters and subsistence charges	232,543	196,277	176,485
Total, Bureau of Reclamation	141,607,058	139,089,482	171,570,250
ALLOCATION ACCOUNTS			
Total number of permanent positions	134	108	118
Full-time equivalent of all other positions	11	8	7
Average number of all employees	123	107	118
Number of employees at end of year	111	110	123
Average GS grade and salary	7.6 $5,992	7.5 $6,079	7.7 $6,134
Average salary of ungraded positions	$4,744	$4,871	$4,929
01 Personal services:			
Permanent positions	$683,150	$619,795	$700,833
Positions other than permanent	55,175	37,205	31,295
Other personal services	9,871	8,858	7,388
Total personal services	748,196	665,858	739,516
02 Travel	80,333	82,838	99,965
03 Transportation of things	1,223	2,709	3,740
04 Communication services	5,488	4,966	6,970
05 Rents and utility services	2,596	2,935	3,347
06 Printing and reproduction	15,269	7,414	18,900
07 Other contractual services	1,297,000	1,712,203	1,946,909
Services performed by other agencies	138,000	95,355	95,355
08 Supplies and materials	23,214	29,210	31,250
09 Equipment	3,728	3,066	6,990
11 Grants, subsidies, and contributions	43,890	40,478	45,907
13 Refunds, awards, and indemnities	641	266	100
15 Taxes and assessments	1,417	1,138	1,051
Total, allocation accounts	2,360,995	2,648,436	3,000,000
Total obligations	143,968,053	141,737,918	174,570,250
Obligations are distributed as follows:			
Bureau of Reclamation	141,607,058	139,089,482	171,570,250
Fish and Wildlife Service	211,651	233,237	280,000
Geological Survey	1,255,508	1,669,942	1,890,000
Bureau of Indian Affairs	225,168	176,954	196,400
Bureau of Land Management	237,079	210,745	249,600
Bureau of Mines	123,674	122,926	140,000
National Park Service	307,915	234,632	244,000

Mr. CANNON. The committee will be in order. A quorum is present. We will take up "Construction and rehabilitation."
Insert the summary statement on pages 95 through 98.

(The pages follow:)

CONSTRUCTION AND REHABILITATION—GENERAL STATEMENT

SUMMARIZED FINANCIAL DATA

Fiscal year 1960:	
Appropriation	$132,466,171
Advances from non-Federal sources	83,326
Application of prior year funds	8,352,140
Balance available in subsequent years	−1,074,628
Total obligation program, fiscal year 1960	[1] 139,827,009
Fiscal year 1961:	
Appropriation	173,950,000
Application of prior year funds	1,074,628
Balance available in subsequent years	−203,878
Total obligations, fiscal year 1961	[2] 174,820,750

[1] Excludes initial underfinancing of $4,928,388.
[2] Excludes initial underfinancing of $10 million.

The Bureau is requesting $173,950,000 for construction and rehabilitation in fiscal year 1961. This amount, plus $870,750 of prior year funds and $10 million initial underfinancing will provide for a total program of $184,820,750. The $203,878 to be used after fiscal year 1961 consists of $117,000 for work on the Soap Lake Protective Works of the Columbia Basin project and $86,878 for further studies on the All-American canal.

This program, for work in fiscal year 1961, will finance contract earnings and associated costs on 30 regular projects, 19 units and divisions of the Missouri River Basin project, and the rehabilitation and betterment activity.

Included in the fiscal year 1961 program is $4,173,000 covering four new construction starts. These are Vale project, Bully Creek extension, Oregon; Lower Rio Grande rehabilitation project, La Feria division, Texas; Almena unit, Kansas, of the Missouri River Basin project; and Yellowtail unit, Montana and Wyoming, also of the Missouri River Basin project.

The Missouri River Basin project program as presented herein includes the Fort Peck project program as a part of the Transmission division. Of the projects under construction in fiscal year 1961, nine regular projects and six Missouri River Basin project units are grouped under the drainage and minor construction category because of their relatively limited programs. Included also is an amount of $2 million for continuation of investigations and advance planning in connection with the Missouri River Basin project, consisting of surveys and investigations to establish plans for future developments, $3 million for the activities of other Department of Interior agencies participating in the Missouri River Basin program, and $254,000 for advance planning on authorized regular projects.

The fiscal year 1961 program contemplates the continuation of construction on all active projects at a rate consistent with efficient and orderly construction. To a large extent this rate is established by the estimated earnings of contractors operating under construction contracts awarded in prior years. Since construction of Bureau projects extends over a number of years, it is not possible to directly relate 1 year's work to accomplishments in terms of water for new land or kilowatts of generating capacity. Continuation of construction activities during 1961 at the rate provided in the estimate will result in making available water for the irrigation of 63,600 acres of new land and 61,200 acres of land now receiving an inadequate supply. Hydroelectric generating capacity will be increased by 48,000 kilowatts. To a large extent these accomplishments reflect the application of appropriations in previous years while the result of 1961 appropriations will be felt in the years following.

A small program for the rehabilitation of existing projects which have become obsolete or badly deteriorated is also provided for in the estimate. New 1961 appropriations of $3,609,000 are included in the overall construction and rehabilitation estimate to finance rehabilitation work on 10 projects.

The following table shows the allocation of appropriations for fiscal year 1960, and the proposed allocation of the fiscal year 1961 appropriation estimate.

Construction and rehabilitation

Activity	Fiscal year 1960				Fiscal year 1961			
	Appropriation	Prior year funds programed	Initial underfinancing	Total obligations	Appropriation	Prior year funds programed	Total obligations
Advance planning					$254,000		$254,000
Gila project, Arizona	$3,304,305	[1] $894,228		$3,398,533	4,219,000		4,219,000
Colorado River front work and levee system, Arizona-California	370,500	[2] −137,589		232,911	769,500	$250,500	1,020,000
Boulder Canyon project, Arizona-Nevada	2,754,375	24	$73,125	2,827,524	2,857,000		2,857,000
Central Valley project, California	40,373,554	1,173,446	1,946,341	43,493,341	61,306,100		61,306,100
Colbran project, Colorado	4,295,730	66,465	91,770	4,453,965	5,140,000		5,140,000
Minidoka project, North Side pumping division, Idaho	797,550	36,773		834,323	429,000		429,000
Palisades project, Burns Creek Dam and powerplant, Idaho	487,500	[2] −487,500				487,500	487,500
Washoe project, Nevada-California	678,750	340,830		1,019,580	3,137,000		3,137,000
McMillan Delta project, New Mexico	29,250	170,808	99,250	299,308	100,000		100,000
Middle Rio Grande project, New Mexico	1,316,250	295,595	178,750	1,790,595	1,729,000		1,729,000
Washita Basin project, Oklahoma	9,289,304	91,248		9,380,552	6,960,000		6,960,000
Crooked River project, Oregon	2,684,175	47,525		2,731,700	2,235,000		2,235,000
Rogue River Basin project, Talent division, Oregon	2,367,093		312,000	2,679,093	2,450,000		2,450,000
Vale project, Bully Creek extension, Oregon					173,000		173,000
Klamath project, Oregon-California	508,950	102,133		611,083	868,000		868,000
Lower Rio Grande project, La Feria division, Texas					500,000		500,000
Lower Rio Grande project, Mercedes division, Texas	1,394,250	4,717	68,250	1,467,217	2,500,000		2,500,000
San Angelo project, Texas	3,657,611	239,026	242,389	4,139,026	11,000,000		11,000,000
Provo River project, Utah	518,700	265,000	97,500	881,200	825,000		825,000
Weber Basin project, Utah	4,961,190	115,958		5,077,148	8,283,000		8,283,000
Chief Joseph Dam project, Greater Wenatchee division, Washington	414,375			414,375	2,000,000		2,000,000
Columbia Basin project, Washington	7,427,705	24,845		7,452,550	6,100,000		6,100,000
Drainage and minor construction	2,821,511	2,146,546	639,408	5,607,465	921,120	6,000	927,120
Rehabilitation and betterment of existing projects	3,412,500	[3] 79,949		3,491,549	3,609,000	126,750	3,735,750

See footnotes at end of table, p. 202.

Construction and rehabilitation—Continued

Activity	Fiscal year 1960				Fiscal year 1961		
	Appropriation	Prior year funds programed	Initial underfinancing	Total obligations	Appropriation	Prior year funds programed	Total obligations
Missouri River Basin:							
Ainsworth unit, Nebraska		$136,932		$136,932	$1,500,000		$1,500,000
Almena unit, Kansas					1,000,000		1,000,000
Bostwick division, Nebraska-Kansas	$2,147,925	28,395		2,176,320	821,000		821,000
Cedar Bluff unit, Kansas	331,500	2,118		333,618	1,400,000		1,400,000
East Bench unit, Montana	300,000		$200,000	500,000	2,800,000		2,800,000
Farwell unit, Nebraska	2,778,750	91,410	146,250	3,016,410	7,700,000		7,700,000
Frenchman-Cambridge division, Nebraska	4,009,134	61,750		4,070,884	5,439,000		5,439,000
Glendo unit, Wyoming	1,571,300	1,049,231		2,620,531	775,280		775,280
Helena Valley unit, Montana	2,029,950	30,002		2,059,952	565,000		565,000
Owl Creek unit, Wyoming	982,663	17,412		1,000,075	455,000		455,000
Transmission division, various	16,635,684	553,346	771,930	17,960,960	24,415,000		24,415,000
Webster unit, Kansas	2,793,375	36,812		2,830,187	617,000		617,000
Yellowtail unit, Montana, Wyoming		15,000		15,000	2,500,000		2,500,000
Drainage and minor construction	567,450	420,300	61,425	1,049,175	598,000		598,000
Investigations	775,000	[4] 126,371		901,371	656,000		656,000
Advance planning	1,053,125	99,323		1,152,448	1,344,000		1,344,000
Subtotal, Missouri River Basin, Bureau of Reclamation	35,975,856	2,668,402	1,179,605	39,823,863	52,585,280		52,585,280
Other Department of the Interior agencies:							
Fish and Wildlife	233,025	212		233,237	280,000		280,000
Geological Survey	1,659,450	10,492		1,669,942	1,890,000		1,890,000
Bureau of Indian Affairs	174,037	2,917		176,954	196,400		196,400
Bureau of Land Management	207,675	3,070		210,745	249,600		249,600
Bureau of Mines	122,850	76		122,926	140,000		140,000
National Park Service	228,150	6,482		234,632	244,000		244,000
Subtotal, other agencies	2,625,187	23,249		2,648,436	3,000,000		3,000,000
Total, Missouri River Basin	38,601,043	[4] 2,691,651	1,179,605	42,472,299	55,585,280		55,585,280
Subtotal, construction and rehabilitation	132,466,171	[5] 7,360,838	4,928,388	144,755,397	183,950,000	$870,750	184,820,750
Undistributed reduction based on anticipated delays				−4,928,388	−10,000,000		−10,000,000
Total, construction and rehabilitation				139,827,009	173,950,000	870,750	174,820,750

[1] Includes $25,000 non-Federal advances.
[2] Includes reductions from appropriated funds programed in fiscal year 1961.
[3] Includes $8,326 non-Federal advances.
[4] Includes $50,000 contributions.
[5] See footnotes 1, 3, and 4.

Advance Planning

Mr. Cannon. "Advance planning," $254,000, total.

SPOKANE VALLEY PROJECT, WASHINGTON

Spokane Valley project, $100,000 to complete.
Insert page 100.
(The page follows:)

Construction and Rehabilitation, Advance Planning

SPOKANE VALLEY PROJECT, WASHINGTON

Location and description.—The Spokane Valley project is located along the banks of the Spokane River between the city of Spokane and the Washington-Idaho State boundary. The project will involve construction of pumping plants, wells and pipe distribution systems to serve some 10,290 acres of land of which about 8,370 acres are currently being irrigated.

Authorization.—Public Law 86-276, 86th Congress, 1st session.

Cost of investigations

Total estimated cost preconstruction planning		$199,100
Estimated cost to June 30, 1960		99,100
Fiscal year 1961 program		100,000
Planning allocation	$100,000	
Balance to complete		
Total estimated project cost		5,100,000

Fiscal year 1961 program.—During fiscal year 1961, detailed preconstruction surveys to collect final design data and preparation of designs and specifications will be underway leading to completion of the definite plan report by June 30, 1961.

Justification.—At the present time, some 8,370 acres of the Spokane Valley project are being served by a gravity water supply system diverting from the Spokane River. Most of these facilities have been in operation for many years and the water users are now faced with prohibitive costs of operation and maintenance. In addition, the condition of the main canal has deteriorated to the point that there is danger of a section of the canal being lost because of its precarious location on a steep alluvial bank above the river; and several flumes in the main canal are urgently in need of replacement to insure continued operation of the project. Under the proposed plan of development for the Spokane Valley project, the gravity supply system would be replaced by a pressure pipe distribution system utilizing ground water supplies. In addition, the project would develop some 1,920 acres of new land which would contribute to the economy of the area.

Mr. Cannon. Mr. Commissioner, will the cost of this project, estimated at $5,100,000, be fully reimbursed to the Federal Government?

Mr. Dominy. I will ask Mr. Bennett to answer the question.

Mr. Bennett. Under the authorizing act for the Spokane Valley project the water users are to pay $4,400,000, and power revenues from Chief Joseph Dam project picks up the difference.

Mr. Cannon. You have assurance, that it will be fully reimbursed to the Federal Government?

Mr. Bennett. Mr. Chairman, as we discussed a little bit yesterday, we are having some problems at the moment on this project. Two of the districts which previously had indicated a desire to be in the project now say they do not want to be in the project. That will require that we take a pretty thorough look at the plan and what happens with the two districts out, and it may be we will have to come back to Congress for a further authorization. The present authorization is a very tight one in terms of dollars to be paid. If we get a smaller

[1] Includes $25,000 non-Federal advances.
[2] Includes reductions from appropriated funds programed in fiscal year 1961.
[3] Includes $8,326 non-Federal advances.
[4] Includes $50,000 contributions.
[5] See footnotes 1, 3, and 4.

project, naturally the water users cannot pay that much money so we will have to analyze it from that standpoint.

Mr. CANNON. But you are confident we will get repayment in full?

Mr. BENNETT. Yes, sir. It is a very good project.

WASHOE PROJECT, NEVADA-CALIFORNIA

Mr. CANNON. Washoe project, $149,000.

Insert pages 101 and 101a.

(The pages follow:)

CONSTRUCTION AND REHABILITATION, ADVANCE PLANNING

WASHOE PROJECT, INITIAL PHASE, NEVADA-CALIFORNIA

Location and description.—The Washoe Project, initial phase, is located in western Nevada and eastern California in the general vicinity of Reno and Carson City, Nev. This multipurpose project will consist of Stampede, Prosser, and Watasheamu Dams and Reservoirs, 2 powerplants with 34,500 kilowatts of installed powerplant capacity, and canals and laterals to provide a full water supply for 8,790 acres of new land and a supplemental water supply for 43,680 acres of land in need of additional water for maximum production. Drainage facilities will be provided for some 15,000 acres of land on which production is now curtailed because of waterlogging. The project will also provide flood control, recreation, and fish and wildlife benefits. Prosser Creek Dam and Reservoir is now under construction.

Authorization.—Public Law 858, 84th Congress, 2d session and Public Law 85–706, 85th Congress, 2d session.

Cost of investigations

Total estimated cost preconstruction planning		$1, 820, 000
Estimated cost to June 30, 1960		1, 605, 591
Fiscal year 1961 program		149, 000
Planning allocation	$149, 000	
Balance to complete		65, 409
Total estimated project cost		[1] 52, 245, 000

[1] Includes Prosser Dam and Reservoir now under construction.

Fiscal year 1961 program.—During fiscal year 1961 detailed surveys and studies will be continued leading to completion of the definite plan report by September 1961. Repayment negotiations also will be continued.

Justification.—Better regulation of the available water supply in the Washoe project area is urgently needed. The runoff of the Truckee and Carson Rivers is formed largely from melting snows of the high Sierra Nevada and occurs as torrential floods in the spring but drops sharply after midsummer. The high spring flood flows which are presently unused cause extensive damage along the shoreline of Lake Tahoe and to the cities of Reno and Sparks and inundate farmland in both the Truckee and Carson River Basins. At the same time, there are thousands of acres of farmland which are now producing only part of their full potential because of late season water shortages. Also, surplus ground water within the project area menaces health and property in the vicinity of Reno and Sparks and seriously hinders crop production on a substantial part of the project area. In addition, demands for electrical energy have far outgrown the available supply and large amounts of power must be imported across the high Sierra Nevada from California. Construction of the Washoe project would provide supplemental water for land now suffering from an inadequate supply, urgently needed flood protection and hydroelectric energy to meet the needs of the rapidly growing area.

Mr. CANNON. What likelihood have you here of developing a feasible project? What are the propsects?

Mr. DOMINY. The only phase of the Washoe project that presently is approved for construction is the Prosser Creek Dam. The remainder of this authorized project will not be undertaken until we have

repayment contracts and all the financial arrangements as required by the authorizing act.

Mr. CANNON. Off the record.

(Discussion off the record.)

TRINIDAD PROJECT, COLORADO

Mr. CANNON. Trinidad project, Colorado, $6,113.

Insert page 102.

(The page follows:)

CONSTRUCTION AND REHABILITATION, ADVANCE PLANNING

TRINIDAD PROJECT, COLORADO

Location and description.—The Trinidad project is a proposed multipurpose development of the Corps of Engineers. It would consist of the Trinidad Dam and Reservoir on Purgatoire River about 4 miles upstream from the city of Trinidad, Colo. The project would provide flood protection for the city of Trinidad and the agricultural area in the vicinity. The project also would provide a supplemental water supply for about 19,500 acres of land. The Bureau of Reclamation has the responsibility of negotiating repayment contracts for the reimbursable costs allocated to irrigation.

Authorization.—Authorized for construction by the Corps of Engineers by the Flood Control Act of 1958.

Cost of investigations

Total estimated cost preconstruction planning		$244,500
Estimated cost to June 30, 1960		226,387
Fiscal year 1961 program		6,113
Planning allocation	$5,000	
Stores on hand, etc	1,113	
Balance to complete		12,000
Total estimated project cost		Not applicable

Fiscal year 1961 program.—A report on the irrigation phase of the project which will serve as a basis for the repayment arrangements will be completed by June 1960. The fiscal year 1961 program will provide for continuation of discussions and negotiations with the local interests, Corps of Engineers, and Arkansas River Compact Commission.

Justification.—The Purgatoire River has been subject to periodic floods in the past which have caused extensive damage to the city of Trinidad and the farmlands in the area. Control of the inadequate and highly erratic flows of the river also is needed to insure a full and dependable water supply for the presently irrigated land. In addition, the economy of the area has been largely based on coal mining operations in the area. Virtually all mining operations have been suspended and the local economy has been declining in recent years. Improvement of farming operations through supplemental water would contribute materially toward stabilizing the local economy.

Mr. CANNON. What is the status of the repayment contract on the Corps of Engineers project?

Mr. DOMINY. Do you have any up-to-date information on this, Mr. Bennett?

Mr. BENNETT. I think what we are trying to do here is, first, finish up the report, which is scheduled for June of this year. With this report in hand it will show us where the irrigable lands are and repayment ability. We can then start negotiations of the repayment contract. We plan to do that early in 1961.

Mr. CANNON. You have that in mind?

Mr. BENNETT. Yes, sir.

Mr. DOMINY. And we have from the ditch companies in this area, and already organized, an indicated acceptance of the general plan

being proposed, but we do not have formal agreements negotiated as yet. As Mr. Bennett has pointed out, negotiations cannot proceed until this plan has been studied and all the necessary facts are made available to the interested districts.

Mr. CANNON. What is the status of the work of the Corps of Engineers?

Mr. BENNETT. If I recall correctly, the Corps is now preparing what they call their final-type report which they have just prior to construction.

Mr. CANNON. What is the status of the design memorandum?

Mr. BENNETT. That is what I am talking about. I think that is nearing completion. As I understand, they plan to have that completed.

Mr. CANNON. It is the policy of the committee not to proceed until definite and final arrangements are concluded on contribution of sponsors' benefits. When do you expect to complete arrangements and get a contract?

Mr. DOMINY. Once the report is completed so that we have full factual information that can be discussed with the contracting entities, we think final agreement could be reached in a matter of 6 or 8 months. But until all the factual material is available it is difficult to get the ditch companies and participating elements to sit down and negotiate a final agreement.

Mr. BENNETT. To be on the safe side our program calls for having the contract early in 1962.

Mr. CANNON. Does your program call for completion before the close of fiscal year 1961?

Mr. BENNETT. Our present thinking—and I must emphasize it is just to be safe—we will try to get it during fiscal 1961, but whether it takes all year or 6 months, we do not know.

Mr. CANNON. Off the record.

(Discussion off the record.)

CONSTRUCTION

GILA PROJECT, ARIZONA

Mr. CANNON. Construction, Gila project, $4,219,000. Insert pages 104 through 107.

(The pages follow:)

PROJECT DATA SHEET
LOCATION Colorado Basin - in Southwestern Arizona, in the Southern part of Yuma County, in the
BUREAU OF RECLAMATION

PF-45
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Colorado Basin - in Southwestern Arizona, in the Southern part of Yuma County, in the vicinity of Yuma.

AUTHORIZATION Emergency Relief Act 1935 (48 Stat. 115) and Subsequent acts. | **B/C RATIO** Not Available Date

LAND CERTIFICATION None required. | **DEFINITE PLAN REPORT** None required.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 67,520,000	Appropriations to June 30, 19 59	$ 54,078,366
Net Property and Other Transfers	-4,382,305	Appropriations for F. Y. 19 60	3,304,305
Cash Advances--Non-Federal	25,000	Appropriations to Date	57,382,671
Adjustment	1/ 2,321,500	Initial Underfinancing F. Y. 19 60	
		Appropriations Required for F. Y. 1961	4,219,000
Total to be Allocated	$ 65,484,195	Balance to Complete after F.Y. 19 61	$ 5,918,329

ALLOCATIONS 5/

Irrigation	$ 58,944,979
Power	
M. & I. Water	
Flood & Nav.	
Other 3/	6,539,216
Total	$ 65,484,195

REPAYMENT 2/

Amount Repaid by Irrigators	$ 58,944,979
Amount Repaid by Power	
Amount Repaid by M. & I. Water	
Non - Reimbursable 3/	6,539,216
Total	$ 65,484,195

AMOUNTS PER ACRE 4/

Irrig. Invest. per Acre	$ 570	Payment Capacity per Acre	$ 36.16
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 570	O. & M.	$ 17.00
By Power Revenues		Construction	9.50
By M. & I. Water Users		Total	$ 26.50

STATUS OF REPAYMENT CONTRACT: Executed March 4, 1952 with Wellton-Mohawk Irrigation and Drainage District. Amendatory Contract executed September 1, 1959. Executed December 22, 1952 with Unit "B" Irrigation and Drainage District. Executed May 12, 1953, amended and supplemented June 24, 1954 with North Gila Valley Irrig. Dist. Executed May 26, 1956 with Yuma Mesa I. & D. D.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
(SEE ATTACHED SHEET)							

Acreage Full Supply 103,449 Supplemental Supply — Total Acres 103,449 Power kw None

Region	Date	Project and State
3	1/18/60	Gila Project, Arizona

BR-104

Footnotes appear on following page.

Principal features

Item	Size or capacity	Completion	
		Percent, Jan. 1, 1960	Date
Project common features:			
Completed works		100	November 1952.
North Gila drain No. 3 extension		100	June 1959.
Yuma Mesa division:			
Completed features		100	June 1948.
Yuma Mesa pumping station ..... horsepower	6,825	98	September 1961.
Yuma Mesa unit drainage		28	June 1963.
Water users facilities		95	June 1960.
South Gila distribution and drainage system (investigations).		3	June 1962
Wellton-Mohawk division:			
Completed works		100	December 1953.
Pumping plants Nos. 1, 2, and 3 ..... horsepower	6,000-15,000	97	June 1961.
Wellton-Mohawk Canal ..... miles	18	98	June 1963.
Mohawk Canal ..... do	44	99	Do.
Wellton Canal ..... do	15	98	Do.
Wellton-Mohawk division laterals ..... acres	75,000	99	June 1961.
Wellton-Mohawk drainage facilities		5	June 1967.
Drainage and minor construction work		2	June 1962.

[1] Adjustment represents $1,664,247, Gila project's share of Imperial Dam construction costs, a credit of $456,090 cost allocation assumed by unit "B" Yuma auxiliary project's share of Gila project cost, $1,023,076 of property transfers and other charges funded, $14,235 loss on excess stores, and $76,032 of other physical property.

[2] Repayment period 60 years.

[3] Nonreimbursable irrigation costs authorized by sec. 3 of the act of January 28, 1956 (70 Stat. 5), $6,019,938 plus construction by Corps of Engineers, with funds provided by U.S. Air Force of $372,845. Also includes revenues of $121,433 and $25,000 cash advances.

[4] Represents computed average payment capacity and annual operation and maintenance for Wellton-Mohawk division, based on index of 250 for prices received and 265 for prices paid. Study made in March 1959.

[5] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$54,105,621	$58,944,979
Other		6,539,216
Total to be allocated	54,105,621	65,484,195

Total to be allocated is increased by addition of Wellton-Mohawk drainage system and by South Gila Valley drainage investigations. These costs are all allocable to irrigation. "Other" item represents a chargeoff authorized by the Congress and the cost of property financed by the U.S. Air Force, revenues, and cash advances. Technically these costs are irrigation costs but are isolated in this justification for clarity or presentation.

NOTE.—Data for benefit-cost computation not available inasmuch as construction of Gila Project was commenced before benefit-cost ratio was adopted as indication of project justification.

Agricultural production, present and future

The principal agricultural products produced as a result of irrigation are cereal and forage crops along with vegetables and cotton.

JUSTIFICATION

Description.—The project is located in southwestern Arizona. Its primary purpose is to provide a full water supply to 103,449 acres of arid lands within the project and to 3,406 acres in the Yuma auxiliary project. Four main canal pumping plants are required to deliver water to the distribution systems.

Appropriation title.—Construction and rehabilitation.

WORK PROPOSED, FISCAL YEAR 1961

Yuma Mesa division

Yuma Mesa unit drainage facilities, $10,000.—The program provides for continued drainage investigations studies to determine requirements to control rising ground-water conditions.

South Gila distribution and drainage system investigations, $70,000.—For continued survey and investigations for a distribution and drainage system for the South Gila Valley which is presently irrigated from wells.

Wellton-Mohawk division

Pumping plants Nos. 1, 2, and 3, $4,540.—For minor cleanup work.

Wellton-Mohawk canal, $10,000.—The program provides for continuation of repairs to broken concrete and canal lining.

Mohawk Canal, $10,000.—Repairs to damaged concrete canal lining will continue.

Wellton Canal, $10,000.—For continued repairs to damaged concrete canal lining.

Wellton-Mohawk division lateral system, $2,500.—For completion of cleanup work.

Wellton-Mohawk drainage facilities, $4,015,000.—The program provides for completion of construction on the Wellton-Mohawk main conveyance channel and continuation of work on drainage wells, tile drains and collector drains.

Drainage and minor construction work, $58,464.—The program provides for flood channel clearing, canal lining repairs, structure modification, etc., by the Wellton-Mohawk irrigation and drainage district under a drainage and minor construction work contract.

Service facilities, depreciation and salvage, −$3,000.—The program provides for the acquisition of minor service facilities. These are more than offset by the costs from prior years to be distributed to features during the year.

Other project costs, $17,000.—This provides for the settler assistance program.

Consolidated expenditures and credits, $14,496.—Represents adjustment due to revenues from farming operations and miscellaneous services credited to cost, offset in part by Solicitor's and other charges which do not require funds from this appropriation.

Change in total obligations	*Obligations*
1960 congressional justification	$56, 100, 000
1961 congressional justification	67, 545, 000
Increase	11, 445, 000

The increase is due primarily to the inclusion of an estimate of $11,325,000 for construction of a drainage system in the Wellton-Mohawk division, including a main conveyance channel, wells, tile drains and collector drains. Also included is an estimate of $120,000 for investigations in the South Gila Valley for a distribution and drainage system.

Schedule of construction program, fiscal years 1960 and 1961, Gila project, Arizona

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Project common features: Completed works, subtotal	$3,644,517	$3,644,517			
Yuma Mesa division:					
Completed works	4,773,526	4,773,526			
Yuma Mesa pumping station	1,295,177	1,261,570	$3,607		$30,000
Yuma Mesa unit drainage facilities	725,000	209,126	6,000	$10,000	499,874
Water users' facilities	200,000	189,589	10,411		
South Gila distribution and drainage system investment	120,000		25,000	70,000	25,000
Subtotal	7,113,703	6,433,811	45,018	80,000	554,874
Wellton-Mohawk division:					
Completed works	886,614	886,614			
Pumping plants Nos. 1, 2, and 3	4,335,000	4,164,352	137,930	4,540	28,178
Wellton-Mohawk Canal	5,266,000	5,184,553	35,995	10,000	35,452
Mohawk Canal	7,156,000	7,090,421	5,000	10,000	50,579
Wellton Canal	2,510,000	2,452,702	5,000	10,000	42,298
Wellton-Mohawk division lateral system	15,920,000	15,914,811	2,689	2,500	
Wellton-Mohawk drainage facilities	12,336,600	226,799	3,008,000	4,015,000	5,086,801
Drainage and minor construction works	225,964	5,250	117,780	58,464	44,470
Subtotal	48,636,178	35,925,502	3,312,394	4,110,504	5,287,778
Service facilities, depreciation, and salvage		24,310	10,000	−3,000	−31,310
Other project costs	3,768,297	3,778,903	15,285	17,000	−42,891
Consolidated expenditures and credits	4,382,305	4,193,043	24,888	14,496	149,878
Total expenditures	67,545,000	54,000,086	3,407,585	4,219,000	5,918,329
Undelivered orders		9,052	−9,052		
Total obligations	67,545,000	54,009,138	3,398,533	4,219,000	5,918,329
Method of financing:					
Appropriation, fiscal year 1960			3,304,305		
Advances, non-Federal			25,000		
Application of prior year funds			69,228		
Appropriation required				4,219,000	5,918,329

COST INCREASE

Mr. CANNON. There is a cost increase here of $11,445,000. That is a very old story. It was not going to cost much when we started but it will cost plenty before we complete it.

Can you assure the committee the project is still fully reimbursable at this figure?

Mr. DOMINY. Yes, sir.

This increase is due almost entirely to the inclusion of an estimate of $11,325,000 for construction of a drainage system in the Wellton-Mohawk division, including a main conveyance channel, wells, tile drains, and collector drains.

The Wellton-Mohawk division has executed a supplemental repayment contract adding the full amount of this increase to their reimbursable obligations. This is in an area of very highly productive land with almost a year-round growing season, and we feel confident the project can afford the necessary costs to drain the land.

Mr. CANNON. Have repayment contracts been amended to include the increase?

Mr. DOMINY. Yes, sir.

NONREIMBURSABLE ITEMS

Mr. CANNON. Explain the nonreimbursable item of $6,539,216.

Mr. DOMINY. The nonreimbursable irrigation costs in the amount of $6,019,938 were authorized by the act of January 28, 1956, "An act to authorize the Secretary of the Interior to execute a repayment contract for the Yuma Mesa irrigation district, Gila, Ariz., and for other purposes." Section 3 of that act declared nonreimbursable those costs allocated by the Secretary of the Interior to the following items:

(1) Acreage eliminated from the Gila project by the act of July 30, 1947. The amount allocated under that heading was $1,902,607.

(2) The second item was dust control for the airbase during World War II, and the amount allocated to that item was $1,058,021.

(3) The third was the Yuma Mesa land development costs, and the amount under that heading is $1,127,954.

Mr. CANNON. What was that?

Mr. DOMINY. We had started this Yuma Mesa project prior to the start of the war but did not have the work completed except for the main canal. There was a large airbase on the lands that ultimately would have been irrigated. And in connection with their operations, with no water on the land there was a tremendous hindrance to the airbase operation by reason of dust. We went in and leveled the land and put in irrigation laterals and put in alfalfa. This was done as a wartime crash program and the costs were substantially above what would have been true if the land had been farmed and developed more normally by the settler.

If we had had to assess all those costs to the settlers it would have been burdensome. This was explained to the legislative committee and we were authorized to write off the amount attributable to the war effort, and that was a little over $1 million.

(4) The fourth item was costs not covered by repayment contract, $1,931,356. These are costs associated with the increased cost of completing the Yuma Mesa project following the war when prices had gone up considerably over what had been originally contemplated. The Congress authorized a portion of those costs to be written off and made nonreimbursable.

SETTLER ASSISTANCE

Mr. CANNON. What is this $17,000 you are proposing to use in connection with the settler-assistance program?

Mr. DOMINY. That is the normal practice of the Bureau.

Mr. CANNON. Followed in all cases?

Mr. DOMINY. We have learned through experience that in public land projects with veteran settlers it is highly desirable and practically essential to assure the success of the development to provide assistance to the farmer in laying out his farm and irrigation system and showing him how to get his farm under irrigation. These costs are added to the project cost and are reimbursed under the reimbursement contract. We try to get this performed under supervision of the Agricultural Extension Service or the soil conservation agencies.

Mr. CANNON. Why not available in this instance?

Mr. DOMINY. The problem invariably arises out of the fact the Agricultural Extension Service and soil conservation funds are al-

lotted on the basis of number of farms in a settled area, and if we go in a desert area with a program of bringing new people in, the funds of these established agencies are frequently not sufficient to take care of this extra work. So we still work through them and they actually do the settler assistance work, but they do part of the work with funds supplied by us.

Mr. CANNON. How many acres do you have still available for settlement?

Mr. DOMINY. In the case of the Yuma Mesa division of the Gila project it is all settled. Some of the farms may not actually be farmed in full as yet but they have been settled and the farmers are rapidly developing their farm.

VETERANS LAND PREFERENCE

Mr. CANNON. What acreage do you require in cultivation and within what period, in order to convey title?

Mr. DOMINY. Actually under the Veterans' Settlement Act he is required to occupy the land if he is a veteran and in all cases if it is public land he is a veteran.

Mr. CANNON. You have no nonveteran settlers?

Mr. DOMINY. We have on private lands, of course, and occasionally there is an area of public land that is not claimed by a veteran.

Mr. CANNON. But veterans have preference?

Mr. DOMINY. Yes, veterans have preference and almost universally they occupy the land. There is a tillage requirement and they have to pay the assessments and this is what forces them to cultivate the land because they cannot pay the charges if they do not cultivate the land.

AGRICULTURAL PRODUCTION

Mr. CANNON. What is the principal agricultural production in the Gila project?

Mr. DOMINY. There are two divisions in the Gila project and the agriculture varies between the two divisions. On the Yuma Mesa division it started out as a straight alfalfa-producing area. They sold their hay to California dairymen. But it is shifting now to lemons. They have learned this is one of the finest lemon-growing areas in the world, and a good deal of the land in the Yuma Mesa division is going into the production of lemons. There are 22,000 acres in the Yuma Mesa division.

In the Wellton-Mohawk division there are about 75,000 acres for ultimate development. Their climate is not as good for citrus. The bulk of that acreage is going to row crops of a specialty nature such as cantaloups, honeydew melons, onions, and also alfalfa hay.

COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

Mr. CANNON. Colorado River front work and levee system, $769,500.

Insert pages 109 through 111.

(The pages follow:)

PROJECT DATA SHEET

PF - 63
BUREAU OF RECLAMATION

LOCATION
Southwestern Arizona at the confluence of the Gila and Colorado Rivers, near Yuma, Arizona

AUTHORIZATION

PF-85
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Southwestern Arizona at the confluence of the Gila and Colorado Rivers, near Yuma, Arizona

AUTHORIZATION Act of June 28, 1946 and subsequent acts. | B/C RATIO None Date

LAND CERTIFICATION None Required | DEFINITE PLAN REPORT None Required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 2,051,000	Appropriations to June 30, 19 59	$ 281,000
Net Property and Other Transfers	-	Appropriations for F. Y. 19 60	370,500
Cash Advances--Non-Federal	-	Appropriations to Date	651,500
Adjustment	-	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 19 61	769,500
Total to be Allocated	$ 2,051,000	Balance to Complete after F.Y. 19 61	$ 630,000

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$	Payment Capacity per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per acre:		Annual Charges:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$	O. & M.	$
Flood & Nav. Protection Work	2,051,000			By Power Revenues		Construction	
		Non - Reimbursable	2,051,000	By M. & I. Water Users			
Total	$ 2,051,000	Total	$ 2,051,000			Total	$

STATUS OF REPAYMENT CONTRACT: No repayment contract required. However, in accordance with the conference report on the F.Y. 1960 Appropriation bill agreement has been reached with the irrigation districts concerned to reimburse the Bureau for their share of operating and maintaining the drain from Gila siphon to Colorado River.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
So. Gila Drainage Facilities	4.9 miles	90	6-60				
Drainage Channel-Gila Siphon							
to Colorado River	8.2 miles	0	9-61				

Acreage Full Supply _____ Supplemental Supply _____ Total Acres _____ Power kw _____

Region	Date	Project and State
3	1/18/60	Colorado River Front Work and Levee System, Arizona-California

BR-109

NOTE.--Benefit-cost computations not available inasmuch as work was commenced before benefit-cost ratio was generally adopted as indication of justification.

Colorado River Front Work and Levee System, Arizona-California

JUSTIFICATION

Description.—The work is located in southwestern Arizona at the confluence of the Gila and Colorado Rivers. The purpose of the currently scheduled work is to provide a drain starting at the Gila River siphon to carry the drainage water from all of the Arizona irrigation districts in the Yuma area, some seepage water from the Gila gravity main canal, some Gila River water that enters the eastern end of the Wellton-Mohawk division, Gila project, and probably some Colorado River water that will seep into the drain from the north to the Colorado River.

Appropriation title.—"Construction and rehabilitation."

Work proposed, fiscal year 1961:

Drainage channel-Gila siphon to Colorado River, $1,020,000.—The program provides for the initiation of construction of the drainage channel, for completion of rights-of-way transactions, and for minor contracts.

Change in total obligations

	Obligations
1960 congressional justification	$281,000
1961 congressional justification	2,051,000
Increase	1,770,000

The full amount of the increase is due to the addition of the estimated cost of constructing a deep open drain evacuation channel from the Gila River siphon to the Colorado River.

Schedule of construction program, fiscal years 1960 and 1961, Colorado River front work and levee system, Arizona-California

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
South Gila drainage facilities	$281,000	$107,747	$173,253	.....	.....
Drainage channel-Gila siphon to Colorado River	1,770,000	.....	120,000	$1,020,000	$630,000
Consolidated expenditures and credits	.....	5,921	−5,921	.....	.....
Total expenditures	2,051,000	113,668	287,332	1,020,000	630,000
Undelivered orders	.....	54,421	−54,421	.....	.....
Total obligations	2,051,000	168,089	232,911	1,020,000	630,000
Method of financing:					
Appropriation fiscal year 1960	.....	.....	370,500	.....	.....
Application of prior year funds	.....	.....	112,911	250,500	.....
Balance available in subsequent year	.....	.....	−250,500	.....	.....
Appropriation required	.....	.....	.....	769,500	630,000

Mr. Cannon. Will you explain this project. It was put in by the Senate last year. Why it is nonreimbursable?

Mr. Dominy. The Colorado River front work and levee system was set up as a nonreimbursable item.

Mr. Cannon. Is there any reason why it should not be reimbursable?

Mr. Dominy. This is to carry the water to the Colorado River so that it will not interfere with a privately developed area. If we were to turn that drainage water loose into the Gila River at the location of the Gila main canal it would not get out to the Colorado River because the Gila River is very flat and flows very erratically and therefore the stream bed is not scoured out. It is full of salt cedars and sand bars and we recognized from the start that to put this drainage water from the Wellton-Mohawk division in the river at that point would cause serious problems for the North and South Gila Valleys.

It was determined by the consideration of this that it was a justified part of the Colorado River front work and levee system as a general protection to that area, and it will mean that the drainage water, which will be very saline in character, and would not be usable without major dilution—but by getting it to the Colorado River it will not cause damage and will be diluted there and can then be utilized farther downstream.

BOULDER CANYON PROJECT, ARIZONA-NEVADA

Mr. CANNON. Boulder Canyon project, $2,857,000.
Insert pages 112 through 117.
There are no questions on this one.
(The pages follow:)

PF-65
17-58 1
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Colorado River Basin--On the Arizona-Nevada States boundary, in Mohave County, Arizona and Clark County, Nevada.

AUTHORIZATION: Act of December 21, 1928 — B/C RATIO: None--Construction initiated prior to requirement

LAND CERTIFICATION: None required — DEFINITE PLAN REPORT: None--Construction initiated prior to D.P.R. requirement

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 167,063,996	Appropriations to June 30, 1959	$ 160,664,256
Net Property and Other Transfers	-1,200,000	Appropriations for F. Y. 19 60	2,754,375
Cash Advances--Non-Federal	277,004	Appropriations to Date	163,418,631
Adjustment	1/ 191,700	Initial Underfinancing F. Y. 1960	73,125
Interest during Construction	8,600,000	Appropriations Required for F. Y. 19 61	2,857,000
Total to be Allocated	$ 174,932,700	Balance to Complete after F.Y. 19 61	$ 715,240

ALLOCATIONS 6/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power	146,524,218	Amount Repaid by Power	4/ 171,524,218	Repayment of Investment per acre:	Payment Capacity per Acre $
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators $	Annual Charges:
Flood & Nav.	25,000,000			By Power Revenues	O. & M. $
Non Project 2/	3,408,482	Non - Reimbursable	2/ 3,408,482	By M. & I. Water Users	Construction
Total 3/	$ 174,932,700	Total	3/ $ 174,932,700		Total $

STATUS OF REPAYMENT CONTRACT:

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Hoover Dam & Reservoir	29,827,000AF	100	9-35	General Property Boulder City			
Hoover Powerplant	1,344,800KW	91	11-61	investment transferred to			
Hoover Switchyard	1,441,850Kva	90	11-61	Boulder City Municipal			
Permanent operating facilities				Office	--	99	5/
Dam and Reservoir	--	99	6-61				
General Property Investment retained by Boulder Canyon Project	--	100	7-52				

Acreage Full Supply -- Supplemental Supply -- Total Acres -- Power kw 1,344,800

Region	Date	Project and State
3	1-18-60	Boulder Canyon Project, Arizona-Nevada

BR-112

[1] Represents $191,700 in capitalized additions to Boulder City subsequent to July 1, 1952.
[2] The Interior Department Appropriation Act, 1949 (Public Law 841, 80th Cong., act of June 29, 1948) authorizes and directs the diminution annually of the long-term debt obligation based on advances and readvances to the Colorado River dam fund in amounts equal to those which are determined to be nonproject investments and expenditures.
[3] Includes $8,600,000 interest during construction.
[4] Includes $25,000,000 deferred for flood control.
[5] Separation of Boulder City accomplished on Jan. 4, 1960.
[6] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Power	$147,823,447	$146,524,218
Flood control	25,000,000	25,000,000
Nonproject	3,353,253	3,408,482
Total to be allocated	176,176,700	174,932,700

Total to be allocated is decreased because of a reduction in estimated obligations to be incurred in construction of Hoover powerplant unit N-8. The change in nonproject represents a progressive diminution of the long-term debt obligation based on advances to the Colorado River dam fund as provided by Public Law 841, 80th Cong. The decrease in the power allocation is a reflection of reduced estimated obligations and the increase in nonproject costs.

NOTE.—Data for benefit-cost computations not available inasmuch as construction of Boulder Canyon Project was commenced before benefit-cost ratio was adopted as indication of project justification.

JUSTIFICATION

Description.—This is a multipurpose project to regulate the flow of the Colorado River for control of floods, for irrigation and municipal water supplies, for improvement of navigation, and for generation of electrical energy. The Hoover powerplant is designed to have an installed nameplate capacity of 1,344,800 kilowatts. The Bureau of Reclamation operates and maintains the Hoover Dam and powerplant with appropriated funds from operating revenues. Certain powerplant machinery and other facilities are operated and maintained by the city of Los Angeles and the Southern California Edison Co. as agents for the United States.

Appropriation title.—Construction and Rehabilitation.

Work proposed, fiscal year 1961

Hoover powerplant, $2,307,309.—The program provides for continuation of progress payments for furnishing and installing generator, hydraulic turbine, butterfly valve, governor, generator voltage bus structure, and related equipment for unit N8.

Hoover switchyard, $541,180.—The program provides for progress payments for equipment for unit N8.

Permanent operating facilities (dam and reservoir), $7,221.—This amount is required for the purchase of minor items of equipment.

Adjustments, $1,290.—Represents adjustments due to revenues applied to construction costs.

Changes in total project obligations

	Obligation
1960 congressional justification	$168, 583, 260
1961 congressional justification	167, 341, 000
Decrease	1, 242, 260

The decrease is due to adjustment of the estimate to reflect actual bid prices for furnishing and installing generator, hydraulic turbine, butterfly valve, and governor for generating unit N8, $1,035,870; and decrease in estimated cost for painting generator, generator voltage bus structure, and other minor work associated with unit N8, $307,390. This decrease is partially offset by an increase of $101,000 due to structural changes in the switchyard.

Schedule of construction program, fiscal years 1960 and 1961, Boulder Canyon project, Arizona-Nevada

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Hoover Dam and Reservoir	$84,151,495	$84,151,495			
Hoover powerplant	57,596,538	52,204,342	$2,715,500	$2,307,309	$369,387
Hoover Switchyard	12,179,489	10,980,692	304,625	541,180	352,992
Permanent operating facilities (dam and reservoir)	5,094,247	5,080,583	6,443	7,221	
General property (Boulder City investment retained by Boulder Canyon project)	1,670,218	1,670,218			
General property (Boulder City investment transferred to Boulder City Municipal Office)	5,449,013	5,448,055	958		
Consolidated expenditures and credits	1,200,000	1,205,849		1,290	−7,139
Total expenditures	167,341,000	160,741,234	3,027,526	2,857,000	715,240
Undelivered orders		200,002	−200,002		
Total obligations	167,341,000	160,941,236	2,827,524	2,857,000	715,240
Method of financing:					
Appropriation, fiscal year 1960			2,754,375		
Application of prior-year funds			24		
Initial underfinancing			73,125		
Appropriations required				2,857,000	715,240

Operation and maintenance

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960
Work proposed, fiscal year 1961 (normal operation and maintenance will be continued):			
Electric generation (reduction is made up of $60,000 due to reorganization of the project and reduction in force; $20,000 decrease in requirements for replacement of water piping; and $21,000 decrease in work performed for Boulder City Municipal Office)	$883,000	$782,000	−$101,000
Transmission system (no change in program from prior year)	2,000	2,000	
General project activities (the net change of $6,000 reflects an increase of $44,000 for the first full year delivery of water to Boulder City, Nev. in accordance with sec. 9 of Public Law 85-900, as an activity of the Boulder Canyon project. Prior to separation, this activity was carried as an item under the Boulder City budget. The above increase is partially offset by a decrease of $22,000 for administrative and general expenses, a reduction in general property replacements of $12,000 and other miscellaneous decreases of $4,000)	545,000	551,000	+6,000
Total obligations	1,430,000	1,335,000	−95,000
Appropriations available and required	1,430,000	1,335,000	−95,000

Project statistics, Boulder Canyon project, Arizona-Nevada

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscalyear 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dams and reservoirs	Number	1	1	1
Telephone lines	Miles	9	9	9
Operating roads	Miles	5	5	5
Power System:				
Annual sales	Kilowatt-hours	4,104,549,853	3,516,000,000	4,128,520,000
Revenues from sale of electrical energy.	Dollars	9,885,374	9,030,000	9,928,000
Powerplants	Number	1	1	1
Plant capacity (nameplate capacity).	Kilowatts	1,249,800	1,249,800	1,249,800
Patrol roads	Miles	15	15	15
Transmission lines:				
Circuit	Miles	22	22	22
Structural	Miles	22	22	22
Substations	Number	5	5	5
Substations, capacity	Kilovolt-amperes	1,441,850	1,441,850	1,441,850

CENTRAL VALLEY PROJECT, CALIFORNIA

Mr. CANNON. Central Valley project, $61,306,100.
Insert pages 118 through 132.
(The pages follow:)

PROJECT DATA SHEET

PF - 85
(7-56)
BUREAU OF RECLAMATION

LOCATION In Central Valley Basin comprising the Sacramento and San Joaquin River Valleys in California, extending from Mount Shasta in the north to Tehachapi Mountains in the south.

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION In Central Valley Basin comprising the Sacramento and San Joaquin River Valleys in California, extending from Mount Shasta in the north to Tehachapi Mountains in the south.

AUTHORIZATION Emergency Relief Act, 1935 (49 Stat. 115) and subsequent acts.

B/C RATIO Trinity River Div. 2.38 Date 10-15-57

LAND CERTIFICATION By Secretary 4-5-56 (Trinity River Division)

DEFINITE PLAN REPORT For Trinity River Division submitted February 4, 1957.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 817,886,082	Appropriations to June 30, 19 59	$ 558,301,990
Net Property and Other Transfers	-4,338,314	Appropriations for F. Y. 19 60	40,373,554
Cash Advances--Non-Federal	94,240	Appropriations to Date	598,675,544
Adjustment 1/	-15,787,008	Initial Underfinancing F. Y. 1960	1,946,341
Total to be Allocated	$ 797,855,000	Appropriations Required for F. Y. 1961	61,306,100
		Balance to Complete after F.Y. 19 61	$ 155,958,097

ALLOCATIONS 3/

Irrigation	$ 394,033,000
Power	318,825,000
M. & I. Water	19,124,000
Flood & Nav.	48,535,000
Other 2/	17,288,000
Total	$ 797,855,000

REPAYMENT

Amount Repaid by Irrigators	$ 273,035,000
Amount Repaid by Power	430,571,000
Amount Repaid by M. & I. Water	28,714,000
Reimbursable Fish & W.L. allocation repaid from project net revenues	2,568,000
Non-Reimbursable	62,967,000
Total	$ 797,855,000

AMOUNTS PER ACRE

From $24 to over $100

Irrig. Invest. per Acre	$ 321
Repayment of Investment per acre:	
By Irrigators	$ 222
By Power Revenues	91
By M & I Water Users	8

Payment Capacity per Acre $ ____

Annual Charges:
O. & M. $ ____
Construction Various from $1.50 to $2.50 per acre-foot.
Total $ ____

STATUS OF REPAYMENT CONTRACT: As of July 1, 1959, 52 water service contracts had been executed and 49 were under negotiation. A power wheeling contract was executed on August 27, 1951, and 26 power sales contracts are currently in force. Sixteen contracts for the construction of distribution systems have also been executed.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date
(SEE NEXT PAGE)			

	Size or Cap.	Completion % 1-1-60	Completion Date

Acreage Full Supply 282,955 Supplemental Supply 944,639 Total Acres 1,227,594 Power kw 1,013,800

Region	Date	Project and State
2	1-18-60	Central Valley Project, California

BR-118

Footnotes appear on following page.

Principal features

	Size or capacity	Completion	
		Percent Jan. 1, 1960	Date
Trinity River Division:			
Trinity Dam and facilities	2,500,000 acre feet	76	May 1962.
Whiskeytown Dam and facilities	250,000 acre-feet	6	December 1962
Lewiston Diversion Dam	14,600 acre-feet	24	October 1962.
Lewiston fish facilities		22	Do.
Clear Creek Tunnel	10.8 miles	64	June 1962.
Spring Creek Tunnel	2.9 miles	1	June 1963.
Irrigation development (Cow Creek)	9,850 acres	0	Do.
Trinity powerplant	100,000 kilowatts	1	Do.
Clear Creek powerplant	134,000 kilowatts	0	Do.
Spring Creek powerplant	150,000 kilowatts	0	August 1963.
Lewiston powerplant	300 kilowatts	0	June 1963.
Transmission facilities, south of Keswick	220 miles	0	May 1963.
Transmission facilities, Trinity Division powerplants to Keswick.	32 miles—230 kilovolts.	0	June 1963.
Permanent operating facilities		0	Do.
Temporary camp		98	November 1962.
Shasta Division	454,000 kilowatts	99	June 1960.
Sacramento River Division:			
Red Bluff Diversion Dam and Reservoir	75 feet x 740 feet	10	June 1964.
Corning Canal and facilities	21.1 miles	65	August 1963.
Corning Canal distribution systems	21,969 acres	0	May 1963.
Tehama-Colusa Canal and facilities	126 miles	3	After 1966.
Chico Canal and facilities	19 miles	2	Do.
Permanent operating facilities		0	Do.
American River Division	175,500 kilowatts	92	September 1962.
Project General:			
Water rights		94	June 1963.
Central Valley Waterfowl Conservation		38	June 1961.
Preference customer metering facilities		100	
Central Valley radio network		100	
Permanent operating facilities		100	
Delta Division:			
Distribution Systems		0	June 1963.
Completion of other facilities		97	Do.
Friant Division:			
Friant Dam and Reservoir	520,500 acre-feet	100	
Madera Canal, 1,000 cubic feet per second	36 miles	100	
Friant-Kern Canal, 5,000 cubic feet per second	153 miles	99	June 1964.
Madera distribution system	104,000 acres	62	March 1963.
Friant-Kern distribution system	214,820 acres	93	December 1961.
Permanent operating facilities		100	December 1959.
Temporary camp		100	June 1960.

[1] Decrease of $15,787,008 due to exclusion of $77,682,001 for distribution systems repaid by separate contracts, to the exclusion of $204,017 for the rewind of Shasta generator unit No. 4, to the exclusion of $67,000 for the Friant fish hatchery pipeline, to the inclusion of $62,166,010 for Folsom Dam constructed by the Corps of Engineers, and to other minor adjustments.

[2] Other includes nonreimbursable Fish and Wildlife, $14,179,000, nonreimbursable recreation $250,000, and reimbursable Fish and Wildlife $2,859,000.

[3] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$394,197,000	$394,083,000
Power	319,235,000	318,825,000
Municipal and irrigation water	19,142,000	19,124,000
Flood control	48,580,000	48,535,000
Other (fish and wildlife and recreation)	17,009,000	17,288,000
Total to be allocated	798,163,000	797,855,000

Total to be allocated has been reduced due to a lesser assignment of the cost of Folsom Dam, offset in part by the cost of additional miscellaneous irrigation studies and the additional Fish and Wildlife costs at Nimbus Hatchery and Tracy pumping plant. These changes have in turn reduced the allocation to irrigation, power, flood control, and municipal and irrigation water and increased the allocation to "Other."

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.58.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.21.

Agricultural production, present and future

Over 200 different commercial crops, field, truck, cereal, seed, forage, and nursery crops, nuts, vines, deciduous and citrus fruits are now being raised and will continue to be produced in greater quantity in the future.

JUSTIFICATION

Description.—The project is located in central California and primarily consists of an integrated system of water storage and conveyance. Water supply made available by the project is used for full and supplemental irrigation, municipal and industrial consumption, and for the generation of hydroelectric power. Flood control, recreation, navigation, and fish and wildlife protection are also products of the project. The El Dorado Irrigation District operates and maintains the Sly Park features. All other completed features of the project are operated and maintained by the Bureau of Reclamation with appropriated funds.

Appropriation title.—Construction and rehabilitation.

WORK PROPOSED, FISCAL YEAR 1961

Trinity River division

Trinity Dam and facilities, $12,348,353.—This amount will virtually complete Trinity Dam and Reservoir. It is anticipated that all right-of-way purchases and construction of minimum basic recreational facilities will be completed. The dam embankment will also be completed and initial storage capacity available. Clearing of the reservoir area and relocation of roads will be nearing completion.

Whiskeytown Dam and facilities, $9,765,000.—Program will provide for continuation of construction of Highway 299 relocation and initiation of construction on Whiskeytown Dam. Reservoir clearing and road relocation will be started. Minimum basic recreational facilities will be underway.

Lewiston diversion dam, $1,002,110.—This amount will be used to initiate construction of Lewiston Dam. Reservoir clearing will also be started.

Lewiston fish facilities, $321,286.—The program provides for the initiation of construction of a fish hatchery and the continuation of the transportation of fish pending completion of the hatchery.

Clear Creek tunnel, $8,109,000.—This amount will be used to continue construction of the Clear Creek tunnel. Contracts will be awarded for purchase of the powerplant penstock and valves and for the construction of the powerplant tailrace.

Spring Creek tunnel, $7,153,500.—Construction will be continued on the Spring Creek tunnel and conduit. Contracts for the powerplant tailrace and the penstock and valves will be initiated.

Trinity powerplant, $4,087,500.—This program will be used to cover contractor's earnings on the powerplant and turbine and generator contracts.

Clear Creek powerplant, $4,790,000.—Contractor's earnings on the powerplant, turbines, and generators and associated activities will be provided with this program.

Spring Creek powerplant, $4,020,000.—These funds are required for contractor's earnings on the powerplant for payment on turbine and generator contracts and for initiation of construction of a small debris dam to protect the tailrace and improve fish conditions.

Lewiston powerplant, $16,000.—This amount is required for preconstruction work and award of contract for first stage construction in conjunction with construction of the diversion dam.

Transmission division facilities south of Keswick, $320,000.—With these funds studies for the lines south of Keswick will be continued for use in evaluating possible wheeling by the Pacific Gas & Electric Co.

Transmission division facilities, Trinity division powerplants to Keswick, $959,000.—The program provides for preparation of plans and specifications and award of contract late in the fiscal year for construction of Trinity-Clear Creek-Keswick and the Spring Creek-Keswick 230-kilovolt lines. Funds are also included for award of contract and earnings for construction of substations at Trinity, Clear Creek, and Spring Creek and additions to the substation at Keswick.

Temporary camp, $20,000.—This amount provides for miscellaneous work to be accomplished in the completion of Trinity River division community facilities

Service facilities, depreciation and salvage, −$293,336.—The program includes $50,664 for the purchase of automotive and work equipment at the Trinity camps more than offset by −$344,000 of prior costs of service facilities to be distributed to the permanent property.

Sacramento River division

Corning Canal and facilities, $454,390.—This amount is required for payment of contractors' earnings on the Corning pumping plant and electrical equipment necessary to complete the plant, as well as for contracts for pumps and motors for the relift facilities to be awarded in conjunction with the distribution system contracts.

Corning Canal distribution systems, $1,143,000.—Following execution of repayment contracts, this amount is required for contractor's earnings on the Proberta Water District distribution system and the Corning Water District distribution system.

Tehama-Colusa Canal and facilities, $10,000.—To continue the collection of field data necessary for the canal.

Permanent operating facilities, $22,000.—This amount will be used for the construction of the operator's residence and water supply at the Corning Canal pumping plant.

Service facilities, depreciation and salvage, —$8,700.—This represents prior costs of service facilities to be distributed to the permanent properties.

American River division, $1,607,000.—The program will provide for the land and rights and contractor's earnings on the first stage of the distribution system for the El Dorado Irrigation District, as well as the procurement of land and rights and the award of the construction contract for the second stage of the system.

Project general

Water rights (Sacramento and San Joaquin Rivers), $180,000.—The investigation of water rights along the Sacramento River and its tributaries and along the San Joaquin River will be continued. Hydrographic data will be collected and analysis of water-right data will continue.

Central Valley waterfowl and conservation, $168,037.—This program continues the activity for waterfowl conservation under Public Law 674, 83d Congress (68 Stat. 879). The U.S. Fish and Wildlife Service and the California Department of Fish and Game will install pumps and construct levees and ditches at the Merced National Wildlife Area and at the Mendota Waterfowl Area.

Delta division

Distribution systems, $1,100,000.—This amount is required for field work, surveys, and initial work on plans and specifications for distribution systems for Clayton-Marsh Creek area of the Contra Costa County Water District, Maine Prairie Water District, and the Feather Water District. Construction will be initiated on the Feather Water District and the Maine Prairie Water District systems.

Completion of other facilities, $117,999.—The program provides for correcting the settlement of recording equipment, completion of cleanup and a minor amount of paving at the Delta fish protection facilities; and for the correction of freeboard by raising canal linings in certain sections of the Delta-Mendota canal.

Friant division

Friant-Kern canal, $69,113.—For furnishing and installing measuring devices for the Saucelito and Stone Corral Irrigation Districts.

Madera distribution system, $1,750,437.—This amount is required for contractors' earnings on units 1 and 2 of the Madera extensions following award of contracts.

Friant-Kern distribution systems, $1,995,559.—Provides for completion of land rights acquisition for unit 1 of the Southern San Joaquin Municipal Utility District system, contractor's earnings on the Stone Corral system, completion of land rights on the Shafter-Wasco system, and the virtual completion of the Tea Pot Dome system.

Service facilities, depreciation and salvage, —$5,000.—Represents amount of prior costs of service facilities to be distributed to permanent property.

Consolidated expenditures and credits, $83,852.—Represents transfers and credits in the amount of $41,852, miscellaneous investigations of future systems to be accomplished in the budget year which will subsequently be distributed to project features in the amount of $62,000 offset by a distribution of $20,000 in stores.

Changes in total obligations

	Obligations
1960 congressional justification	$803, 554, 817
1961 congressional justification	817, 980, 322
Increase	14, 425, 505

The increase in total obligations is due to the inclusion of additional Delta division distribution systems in the amount of $8,800,000 (Contra Costa County Water District, Maine Prairie Water District, and Feather Water District) and the inclusion of the Corning Canal distribution system in the amount of $4,765,000 (both items for the first time) and to minor increases, including $127,000 for additional water rights studies, $136,000 for additional turnouts on Corning and Delta-Mendota Canals, a $268,000 increase on the Delta fish screen and other final and minor cost changes of $329,505.

Schedule of construction program, fiscal years 1960 and 1961, Central Valley project, California

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Trinity River division:					
Trinity Dam and facilities	$91, 665, 000	$51, 058, 179	$24, 935, 513	$12, 348, 353	$3, 322, 955
Whiskeytown Dam and facilities	22, 647, 000	571, 381	3, 236, 619	9, 765, 000	9, 074, 000
Lewiston diversion dam	4, 272, 000	916, 398	125, 000	1, 002, 110	2, 228, 492
Lewiston fish facilities	1, 925, 000	430, 670	86, 714	321, 286	1, 086, 330
Clear Creek tunnel	51, 702, 000	25, 710, 892	13, 112, 266	8, 109, 000	4, 769, 842
Spring Creek tunnel	28, 675, 000	267, 399	921, 000	7, 153, 500	15, 333, 101
Irrigation development (Cow Creek)	4, 507, 000				4, 507, 000
Trinity powerplant	11, 480, 000		300, 000	4, 087, 500	7, 092, 500
Clear Creek powerplant	12, 865, 000		345, 000	4, 790, 000	7, 730, 000
Spring Creek powerplant	14, 529, 000		275, 000	4, 020, 000	10, 234, 000
Lewiston powerplant	203, 000			16, 000	187, 000
Transmission facilities, south of Keswick	15, 435, 000		298, 000	320, 000	14, 817, 000
Transmission facilities, Trinity powerplants to Keswick (230 kilovolts)	5, 095, 000		97, 000	959, 000	4, 039, 000
Permanent operating facilities	2, 000, 000				2, 000, 000
Temporary camp	2, 800, 094	2, 740, 094	20, 000	20, 000	20, 000
Service facilities, depreciation and salvage	−2, 800, 094	679, 996	−237, 000	−293, 336	−2, 949, 754
Subtotal	262, 000, 000	82, 375, 009	43, 515, 112	52, 618, 413	83, 491, 466
Shasta division	181, 836, 142	181, 794, 071	42, 071		
Sacramento River division:					
Red Bluff diversion dam and reservoir	5, 331, 000	514, 344			4, 816, 656
Corning canal and facilities	6, 762, 800	3, 959, 389	1, 151, 400	454, 390	1, 197, 621
Corning canal distribution systems	4, 765, 000		109, 396	1, 143, 000	3, 512, 604
Tehama-Colusa canal and facilities	41, 334, 000	1, 077, 541	10, 000	10, 000	40, 236, 459
Chico canal and facilities	5, 847, 000	142, 625			5, 704, 375
Permanent operating facilities	990, 000		1, 500	22, 000	966, 500
Service facilities, depreciation and salvage		20, 852	−6, 400	−8, 700	−5, 752
Subtotal	65, 029, 800	5, 714, 751	1, 265, 896	1, 620, 690	56, 428, 463
American River division	49, 527, 158	45, 503, 467	459, 522	1, 607, 000	1, 957, 169
Project, general:					
Water rights (Sacramento and San Joaquin Rivers)	9, 581, 000	8, 894, 467	180, 000	180, 000	326, 533
Central Valley waterfowl conservation	400, 000	151, 584	80, 379	168, 037	
Preference customer metering facilities	256, 505	256, 505			
Central Valley radio network	336, 459	336, 459			
Permanent operating facilities	342, 538	342, 538			
Service facilities, depreciation, and salvage		33, 738			−33, 738
Subtotal	10, 916, 502	10, 015, 291	260, 379	348, 037	292, 795

Schedule of construction program, fiscal years 1960 and 1961, Central Valley project, California—Continued

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program—Continued					
Delta division:					
Distribution systems	$8,800,000			$1,100,000	$7,700,000
Completion of other facilities	88,466,185	$86,252,390	$530,691	117,999	1,565,105
Service facilities, depreciation, and salvage					
Subtotal	97,266,185	86,252,390	530,691	1,217,999	9,265,105
Friant division:					
Friant Dam and Reservoir	21,905,253	21,905,253			
Madera Canal	3,397,215	3,397,215			
Friant-Kern Canal	61,241,231	60,821,408	50,710	69,113	300,000
Madera distribution system	13,408,182	8,256,337	492,971	1,750,437	2,908,437
Friant-Kern distribution systems	44,989,059	41,492,087	968,909	1,995,559	532,504
Permanent operating facilities	1,032,990	1,030,036	2,954		
Temporary camp	180,069	178,569	1,500		
Service facilities, depreciation, and salvage	−180,069	−33,915	500	−5,000	−141,654
Subtotal	145,973,930	137,046,990	1,517,544	3,810,109	3,599,287
Other project costs	1,092,291	1,260,773			−168,482
Consolidated expenditures and credits	4,338,314	3,158,616	3,552	83,852	1,092,294
Total expenditures	817,980,322	553,121,358	47,594,767	61,306,100	155,958,097
Undelivered orders		4,101,426	−4,101,426		
Total obligations	817,980,322	557,222,784	43,493,341	61,306,100	155,958,097
Method of financing:					
Appropriation, fiscal year 1960			40,373,554		
Application of prior year funds			1,173,446		
Initial underfinancing			1,946,341		
Appropriation required				61,306,100	155,958,097

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960
Work proposed, fiscal year 1961: Normal operation and maintenance will continue.			
Shasta operations field branch: The decrease is principally due to the completion in fiscal year 1960 of a program that covered rewinding and other rehabilitation of the five Shasta generators. Offsetting increases in the program at the Shasta switchyard will provide $19,355 for generator backing protection and bus protection and $18,600 for wage increases. The replacement program includes $18,700 for one each: sedan, ½-ton pickup, ¾-ton pickup, 2-ton flat rack, and 5-ton flat rack; and $5,000 for preservation treatment of 230-kilovolt wood poles. The increases for these items are more than offset by completion of the major generator rehabilitation program	$1,175,198	$1,032,700	−$142,498
Folsom operations field branch: This increase is principally due to necessary additions and replacements. The additions include $45,000 for tailrace cleaning below Folsom Dam and $20,000 for a turbine lubricating system in the powerplant. Other items include $6,500 for painting Nimbus Dam gates, $10,000 for road repair, and $6,500 for copper conductor rails for the gantry crane. Items in the replacement program include $10,000 for a tractor dozer and $14,000 for motor vehicles, trailer, and tractor	741,636	871,400	+129,764
Tracy operations field branch: In addition to normal wage increases, the program provides for an increased replacement program and a small increase in additions. The $82,200 replacement program compares with a $3,500 program in the current year. The necessary replacements include $40,500 for 2 sedans, 4 panel trucks, 14 ½-ton pickups, and a dump truck; $13,500 for a road grader, $8,000 for bridge replacement on the Contra Costa canal, $7,000 for mobile radios, $6,000 for Sparling meters, and $7,200 for miscellaneous equipment. The addition of a $7,000 hoist and crane at the Contra Costa pumping plant is scheduled. A fence replacement at Contra Costa is offset by a $9,000 reduction in the Tracy pumping plant requirements	1,403,230	1,527,600	+124,370
Fresno operations field branch: The program provides for replacements in the amount of $161,700 compared with a $2,000 program in the current year. Included in the program is $86,000 for 13 ½-ton pickups, 2 sedans, 1 panel delivery truck, 4 2½-ton pickups, as well as a crawler tractor, pneumatic roller, air compressor and gunite machine; also $50,000 for rebuilding of canal bank along Friant-Kern canal, $25,000 for measuring devices at the Mendota pool and the Columbia pumps. Additions include $20,000 for drainage and seepage control and $9,000 for a ditchrider house. Apart from these necessary replacement items and normal wage increases, the program continues at the current rate	1,186,197	1,390,900	+204,703
Project-general activities: These activities, which embrace the entire project, show a net decrease of $403,406. The program provides $629,000 for wheeling, an increase of $82,079 over the current year, $18,581 for normal wage increases, $40,000 for transmission line fault location equipment, $15,000 for mobile radio units, test equipment and a DC calculating board, and $24,000 for load telemetering equipment. These increases are offset by a reduction of $544,676 due to elimination of purchase power on the assumption of a normal water year in fiscal year 1961, and a reduction in fund requirements for Bonneville intertie and other studies	1,681,806	1,278,400	−403,406
Total obligations	6,188,067	6,101,000	−87,067
Appropriation available and required	5,943,067	6,101,000	+157,933
Allotment from emergency fund	245,000		−245,000

Project statistics, Central Valley project, California

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dams and reservoirs	Number	6	6	6
Canals	Mile	411	411	411
Drains	do	30	30	30
Telephone lines	do	5	5	5
Operating roads	do	402	402	402
Power system:				
Annual sales	Kilowatt-hour	2,971,395,218	2,550,000,000	3,000,000,000
Revenues from sale of electrical energy	Dollar	11,799,215	10,123,000	11,910,100
Powerplants	Number	4	4	4
Plant capacity (nameplate capacity)	Kilowatt	629,500	629,500	629,500
Patrol roads	Mile	40	40	40
Patrol trails	do	525	525	525
Transmission lines:				
Circuit	do	765	765	765
Structural	do	570	570	570
Substations	Number	14	14	14
Substations capacity	Kilovolt-ampere	881,195	881,195	881,195
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service, land, full	Acre	33,855	34,050	37,250
Irrigation service, land, supplemental	do	815,745	816,746	819,390
Total		[1] 849,600	[2] 850,796	[2] 856,640
Irrigated area	Acre [3]	669,249	675,000	680,000
Gross crop value	Dollar [3]	202,461,819	207,250,000	208,750,000
Average gross crop value per acre	do. [3]	303	307	307
Sly Park features:				
Storage dams and reservoirs	Number	1	1	1
Canals (conduits)	Mile	7	7	7
Diversion dams	Number	1	1	1

[1] Excludes 94,000 irrigable acres of temporary contractors.
[2] Excludes temporary contractors.
[3] Figures on calendar year basis.

TRANSMISSION LINES

Mr. CANNON. These justifications as first printed included funds for beginning construction of a heavy transmission line from Keswick to Elverta in order to move Trinity power south. They have been revised to include only $320,000 to evaluate wheeling possibilities by P.G. & E.

How much did you originally propose to use for Federal construction of the heavy line in 1961, and to what items has this money been distributed?

Mr. DOMINY. I would like to have Mr. Bennett answer that.

Mr. BENNETT. Mr. Chairman, as I commented to the committee last year, following the decision that the power facilities of the Trinity project were to be constructed federally, we would need funds for power facilities. Funds were appropriated for fiscal 1960. Those were for the power facilities without transmission lines. We realize that in order to have the transmission lines available to move the power when the power is on the line, we will have to start construction in fiscal 1961.

Our initial plans on this project did contemplate construction of Federal transmission lines from the Trinity facilities into Keswick and as far south as Tracy. However, after we had given some consideration to that kind of program the Pacific Gas & Electric Co. offered to wheel the power from Cottonwood to the south. They pointed out they had capacity in their existing line available so that they could take care of the initial generation of Trinity. They felt also that with early construction of their Pit River plant they would need additional transmission facilities and would build lines for both purposes.

Mr. CANNON. Have those expectations been fully realized?

Mr. BENNETT. Studies are being made to determine how much capacity is unused in the P.G. & E. system south of Cottonwood. We do not have a final answer. I think we are in agreement that the capacity would permit use of those lines for a while. We do not have the answer from them as to the cost of wheeling. They are studying it. In the meantime, we have programed funds for transmission which will permit initiation of construction of the lines from the Trinity powerplant, Clear Creek powerplant, and Spring Creek powerplant to Keswick. That is a full year's work in any event. We felt with the possibility of working out a wheeling arrangement with P.G. & E. we were not justified in seeking funds at this particular time. If we are not able to work out a satisfactory wheeling arrangement, then we will request Federal funds for that purpose.

Mr. CANNON. If the wheeling arrangements are not satisfactory you reserve the right to continue under the original plan?

Mr. BENNETT. Yes, sir.

Mr. CANNON. I am advised that the $3 million originally provided for that was distributed to other items.

Mr. BENNETT. This is fiscal year 1961 money, sir. Our thinking earlier this year was that we could use $3,387,500 for transmission lines. However, as I indicated, with the proposal to wheel we obviously did not need that much for transmission facilities, so we did program as a 1961 request $959,000 for the transmission facilities down to Keswick and $320,000 to continue with the planning and evaluation of wheeling arrangements from Keswick to the south.

The difference between those figures, which is roughly $2 million, was reprogramed and, as I remember, most of it went on the other Trinity division power features where we could use additional funds. These are not yet appropriated funds. This is the programing of the fiscal year 1961 money.

Mr. CANNON. Can you break it down and tell us specifically where this money went?

Mr. BENNETT. Yes, sir; we can do that.

(The information follows:)

Central Valley project—Trinity division

	Fund requirement, fiscal year 1961	
	Preliminary program	Appropriation request
Trinity division:		
Trinity Dam and Reservoir	$12,348,353	$12,348,353
Whiskeytown Dam and Reservoir	9,765,000	9,765,000
Lewiston Diversion Dam	[1] 1,013,110	1,002,110
Lewiston fish facilities	321,286	321,286
Clear Creek Tunnel	8,109,000	8,109,000
Spring Creek Tunnel	6,045,000	7,153,500
Irrigation development (Cow Creek)	0	0
Trinity powerplant	4,087,500	4,087,500
Clear Creek powerplant	4,390,000	4,790,000
Spring Creek powerplant	3,420,000	4,020,000
Lewiston powerplant	[1] 5,000	16,000
Transmission facilities	3,387,500	1,279,000
230-kilovolt transmission facilities, Trinity division powerplants to Keswick	(959,000)	(959,000)
Transmission facilities south of Keswick	(2,428,500)	(320,000)
Temporary camp	20,000	20,000
Service facilities, depreciation, and salvage	−293,336	−293,336
Total, Trinity division	52,618,413	52,618,413

[1] Not involved in reprograming of transmission division funds.

During the development of the fiscal year 1961 program for Trinity River division of the Central Valley project, a program was submitted by our field office, but not approved by the Commissioner, which showed $3,387,500 for construction of transmission lines from Trinity powerplant to Tracy. In order to fully investigate the possibility of wheeling the power south of Keswick the field program was revised to eliminate the construction of these facilities in fiscal year 1961, which in turn reduced the transmission system program to $1,279,000. As shown by the above table the $2,108,500 made available by this reduction was reprogramed on the Spring Creek Tunnel, Clear Creek powerplant, and Spring Creek powerplant.

Mr. JENSEN. Mr. Chairman.

Mr. CANNON. Mr. Jensen.

TRINITY DIVISION POWER

Mr. JENSEN. Mr. Dominy, in February 1958 Secretary Seaton, in testifying on the Trinity River division before the House Interior and Insular Affairs Committee, had this to say about the sale of power from the Trinity powerplant:

> A planned sale from an all Federal development at a pooled rate is undoubtedly acceptable operating procedure, but in diluting the loss represented by the differential between the 7-mill cost and the 5-mill pooled sale rate, the only result is to make the loss less obvious.

He is speaking about the Trinity River project. He goes on and he says:

> If rate payers do not absorb this loss the Central Valley project in its entirety will. There is no alchemy—

that is hocus-pocus; that is what that means, that there is hocus-pocus—

> in this pooled rate which can or will transform a loss into a gain.

Can you furnish for the record the expected total loss over a 50-year payment period should this entire program be approved and appropriated for by the Congress?

Mr. DOMINY. Yes, sir. In connection with the Trinity hearings, in pursuing the congressional instruction to report to the Congress

our falling water sale proposal with a private power company as contrasted to an all-Federal power development, those figures were made available for the record. I am sure we can extract that information from the material that was supplied to the Interior and Insular Affairs Committees of the House and Senate, which is of record, and put it in the record here at this point.

Mr. JENSEN. And will you also put in the record the Federal tax that the private utilities would pay over that period of time if they were permitted to purchase the falling water.

Mr. DOMINY. Yes, sir.

Mr. JENSEN. Show a complete picture. We want to have the whole picture before us.

Mr. DOMINY. Yes, sir.

(The information follows:)

REVENUES FROM TRINITY POWER FEATURES UNDER PRIVATE VERSUS PUBLIC OWNERSHIP

Mr. Gerdes of the Pacific Gas & Electric Co. testified before the Committee on Interior and Insular Affairs, House of Representatives, 85th Congress, 2d session, on January 21, 1958, that Federal taxes on the company's operation and ownership of Trinity power features would total $83 million over the project repayment period.

Power produced at the Trinity powerplants will cost more than 7 mills; in fact, the cost may well exceed 8 mills. If it is sold under all-Federal development at present Central Valley project rate schedules, the return will be less than 5 mills. Taking the Central Valley project as it is today without Trinity, you will have a surplus at the end of the project payout period (year 2013) of approximately $232 million. When you add Trinity and continue the same rate for power, including Trinity, the surplus in year 2013 would be approximately $70 million, a difference of $162 million. In other words, this $162 million represents the loss or reduction in the estimated surplus at the end of the repayment period.

WHEELING STUDIES

Mr. JENSEN. $320,000 is being requested to make a study for use in evaluating possible wheeling by the Pacific Gas & Electric Co. for the lines south of Keswick. In the 1960 bill you had $298,000 for these studies. Is that right?

Mr. BENNETT. As I recall that is about what it was. That money went principally to getting the capacities and locations and designs of the lines from Trinity down to Keswick, with some planning money going south of Keswick.

What we have to do now is two things. We have to come up with a Federal system study with cost estimates that we can use in evaluating against the wheeling offer, and that is what we plan to do with the $320,000.

Mr. JENSEN. $320,000 plus $298,000 is a total of $618,000 you propose to spend for studies on this project. Is that not quite high for a project of this nature?

Mr. BENNETT. I am not inclined to think so. As you know, this is a very complicated power matter in the Central Valley with all of the interconnections with P.G. & E. Any time you plan to add almost 400,000 kilowatts in a system it takes quite a bit of studying and that is what we have been doing.

Mr. JENSEN. I was going to mention that 2-mill power loss if the Government builds all these facilities.

Mr. BENNETT. As the figures which we will submit for the record will show, it comes out by reducing the surplus over the total payout period of the project.

Mr. JENSEN. Is it not a fact that the irrigators will have to pay most of that loss in the final analysis?

Mr. DOMINY. That is not exactly the case. By reducing the surplus, of course, there is less——

Mr. JENSEN. Where does the surplus come from? Where will you get any surplus?

Mr. DOMINY. If the Central Valley project operates without Trinity, we have a greater surplus over the repayment period than if it operates with Trinity. But we can furnish during the payout period pumping power and power to the preference customers at the same rate with Trinity added to the system as without Trinity. But at the end of the payout period there is of course a smaller surplus remaining with Trinity added and to that extent it is logical to argue as you point out that there is less money therefore available ultimately from the power features of the project to aid irrigation.

PAYOUT OF CENTRAL VALLEY PROJECT

Mr. JENSEN. What percentage and what part of the Central Valley project is now paying interest on the money all the people of America invest in the Central Valley project?

Mr. DOMINY. All of the power features—anything that is allocated to power and anything that is allocated to municipal and industrial water, is paid back with interest.

Mr. JENSEN. What is the rate?

Mr. DOMINY. The rate is 3 percent, Mr. Jensen.

Mr. JENSEN. That is still borrowing money pretty cheap when we have to pay over 4 percent when we borrow money from the people.

Mr. DOMINY. The allocations on the Central Valley project—with the features presently authorized—power is allocated to repay $318,825,000. That is all to be paid out with interest. Municipal and industrial water is allocated to repay $19,124,000 and that is all repayable with interest.

Mr. JENSEN. I do not think you will ever sell to farmers the idea that they will not pay most of this 2-mill loss that we know is going to occur if the Government builds all of these facilities which have been proposed. I think you are going to have an awful time selling them on the idea. It happens I have received information from some of those farmers, and they feel they are going to pay the bill in the final analysis for these power losses.

Mr. DOMINY. Well, I do not think the record of our repayment arrangements with the various irrigation districts would support a contention that the cost of operating the irrigation features that ultimately are paid by the farmer has been increased by reason of the decision made by Congress to build Trinity as an all-Federal feature.

Mr. JENSEN. We have not spent the money yet.

Mr. DOMINY. Of all the material we have supplied to Congress, none of it indicates that that would be the result.

Mr. JENSEN. You know, sometimes figures do not tell all the truth. I have sat on this committee for 18 years, and you would be surprised at the number of times we have discovered that figures do not always tell the truth, and I am afraid it will be so in this instance.

That is all, Mr. Chairman.

P.G. & E. INTEGRATION CONTRACT

Mr. CANNON. The reason given for change in plan here, does not quite jibe with the facts as we have them. You say you made the change when you discovered that P.G. & E. could and would wheel. According to the statement issued by the Department of the Interior last September you had all that information at that time, but here you tell us that in January you changed your mind because you had just discovered this.

Mr. BENNETT. Mr. Chairman, the document to which you are referring is the power wheeling contract executed August 27, 1951, and extended just last fall.

Mr. CANNON. In September.

Mr. BENNETT. To cover additional matters, but it does not cover the wheeling of power from the Trinity project.

Mr. CANNON. It states here very plainly that the contracts will continue to integrate our system with the P.G. & E. system in order to increase the output and efficiency of both.

Mr. BENNETT. That is correct. That is the integration with the P.G. & E. system.

Mr. CANNON (reading):

> Contracts were originally entered into in 1951, and were revised in 1955 to include contract provisions incorporating arrangements which would apply to any project powerplant subsequently constructed by the United States, including those of the Trinity division.

Still you tell us that all at once, here in January, you suddenly discover it.

Mr. BENNETT. Mr. Chairman, these are two different matters. The contract which is being spoken of there is the power integration contract, and it does contain a general clause that with additional power facilities—we had Trinity in mind—they would by suitable language in the contract include the Trinity division. But that is not our wheeling contract with P.G. & E. This is our power integration contract. They are two different matters.

Mr. CANNON. It is difficult to imagine that all at once you make this discovery. We are so familiar with the policies and practices of the P.G. & E. that any sudden change in policy of that significance is subject to question.

We find in this statement from the Department released in September:

> In commenting on this exchange the Department stated that upon the renewal of its request the company had agreed to an immediate modification of the wheeling contract to add Trinity County to the area eligible for wheeling, and that such modification is in process of execution.

That was in September, and still you tell us now that all at once, in January, you discovered this fact, rather belatedly, to account for a change of such importance, and making such an important change in order to turn this business over to P.G. & E.

Mr. BENNETT. I think that particular contract and statement you are referring to only indicates that P.G. & E. is going to wheel to Trinity County preference customers but does not include wheeling of Trinity power.

Mr. CANNON. P.G. & E. is more than willing to consider it.

How do you interpret the so-called Keating amendment in the bill in connection with this item?

Mr. BENNETT. If we are able to work out a satisfactory wheeling arrangement, then Federal lines should not be constructed, is our interpretation.

BONNEVILLE POWER INTERTIE

Mr. CANNON. Does your possible interest in this line as a Federal investment have any relationship to the possibility of connecting the Bonneville system with the Central Valley system?

Mr. BENNETT. No, sir. The study made by Bonneville Power for a possible intertie did consider the possibilities of intertying with the Central Valley system, but that study reached the conclusion that it would be better to tie with the Pacific Gas & Electric Co. facility, because what they had in Bonneville was secondary energy, and we did not have sufficient capacity in our Federal system alone to make use of that secondary energy. So there is no relationship between the transmission——

Mr. CANNON. Taking for granted that we did tie in the Central Valley system, wouldn't this line contemplated here be of considerable value?

Mr. BENNETT. That is very difficult to say, Mr. Chairman. The main problem with the intertie between Bonneville and the California area is not down in this area; it is up in Oregon where they have to go through the California-Oregon Power Co. Their lines through that area are almost all 115-kilovolt lines. The big problem is there. The minute they get into California they can at that point technically tie in either with our 230-kilovolt system or P.G. & E.'s 230-kilovolt system. The lines are there now to accomplish that purpose.

USE OF 1961 FUNDS FOR KESWICK-ELVERTA LINE

Mr. CANNON. Looking into the future, and the not too distant future, it is very evident that this line would more than pay for its construction.

Mr. DOMINY. Bear in mind, Mr. Chairman, that there is nothing in this program in 1961 which forecloses ultimately a decision that the line south from Keswick should be a Federal line. We ask for money to complete the engineering study so we will be in a position ultimately to give factual information to the Congress and to the Secretary in connection with the final decision on that point.

We recognize that we need to have a Federal tie-in between Trinity and Keswick, and we are asking here the funds to go ahead with that. We remain openminded as to whether the better course of action for the disposition of this power would be by Federal transmission lines and Federal construction south from Keswick, or whether that could be more economically accomplished because of our close integration with P.G. & E. in the disposal and marketing of power in any event, that it might be more economical and prudent to wheel Trinity power over P.G. & E. transmission facilities.

Mr. CANNON. Do you think, Mr. Commissioner, that it is up to you to decide whether a wheeling contract should be entered into, or should Congress be consulted?

Mr. DOMINY. I certainly think the Congress should be consulted, and that was the point I was making, that there is nothing in this

1961 budget which forecloses or even attempts to make the final decision. This will be made following the study which we would be making with the $320,000-odd requested here for that purpose. Once the facts are known, we will be reporting to the Secretary of the Interior and, through him, the Congress will be made aware of the facts and certainly will have an opportunity ultimately to make the decision.

Mr. CANNON. This committee and the Congress would insist on that, I think. It is quite evident that, but for some anchor to windward, you could go ahead and make a wheeling contract and we would never hear of it again. I do not think any action should be taken or any obligation shouldered until we have had ample time for full discussion and consideration of it here in the committee.

Mr. DOMINY. I am in full agreement with that position, sir.

CORNING CANAL DISTRIBUTION SYSTEM

Mr. CANNON. Last year you said you expected to get repayment contracts on the Corning Canal distribution system by August or September. According to your justifications on page 123, you still do not have them, but you are programing $1,143,000 for 1961. What is the story on that?

Mr. DOMINY. We are making, I think, pretty good progress on this. We finally have a detailed cost estimate available to the district for consideration, and the execution of the repayment contract is expected this summer, in the summer of 1960. We have every reason to believe that that will be accomplished with the Corning Water District and also with the Proberta Water District.

Mr. CANNON. There is no proposal or intention to spend any of this money until the contract has been made?

Mr. DOMINY. No, sir.

CENTRAL VALLEY WATERFOWL AND CONSERVATION

Mr. CANNON. There is an item for ducks and fish on page 124. Just where does that come in?

Mr. DOMINY. This program continues the activity for waterfowl conservation under that special act, Public Law 674 of the 83d Congress. The U.S. Fish and Wildlife Service and the California Department of Fish and Game will install the pumps and construct levees and dikes at the Merced National Wildlife Area and at the Mendota Waterfowl Area Pool.

This is a continuation of a program to preserve an existing very desirable hunting and fishing and waterfowl area on an important flyway.

Mr. CANNON. That is all very important, but it is all within the confines of the State of California. It occurs to me that it is a State matter rather than a Federal matter. Why shouldn't the State of California handle that?

Mr. DOMINY. As I say, there is this Public Law 674 in the 83d Congress which provided this particular method of treating with the problem in this area.

Mr. CANNON. Do you think that could be taken over by the State of California along with its other work in that same connection?

Mr. DOMINY. I think it probably could be.

Mr. CANNON. Do you think it should be?

Mr. DOMINY. But, because it is provided for by this special act to be a Federal program, it is unlikely that the State would want to assume the responsibility.

FEATHER WATER DISTRICT AND MAINE PRAIRIE WATER DISTRICT

Mr. CANNON. The Feather Water District and the Maine Prairie Water District. What is the status of the repayment contracts on those two districts in the delta division for which you plan construction of a distribution system?

Mr. DOMINY. On the Feather Water District, the water service and distribution system repayment contract is under negotiation. We expect the cost estimate for the distribution system to be available by April of 1960, and execution will follow approximately in October of 1960. Of course construction would not be undertaken until the contract is actually signed. We have not had enough detailed study to give them a final cost estimate and, lacking that, we have not had a final contract agreement.

MADERA IRRIGATION DISTRICT

Mr. CANNON. Units 1 and 2 of the Madera extensions are new starts?

Mr. DOMINY. They are new starts to this extent: We originally had a contract with the Madera District to build a complete distribution system with a fixed sum limiting the expenditure of the United States. This was during the period of sharply rising costs, Mr. Cannon, and when we were prepared to get construction underway we told the district that we would not be able to complete the entire distribution system which they desired and which had been planned, within the cost estimate and repayment obligation. They countered by passing a resolution saying they wanted as much system as we could build within the original cost estimate. So we completed that part of the system a long while ago, and now they have revised their repayment contract to cover the cost of completing the system. This is what is involved here as far as the Madera is concerned.

Mr. CANNON. You consider it necessary this year? It could not be be deferred?

Mr. DOMINY. It is one of those cases where the district is assessing land which cannot be served.

They are very anxious to be able to deliver water to all the lands that they are assessing. The longer it is delayed, the more difficult it is to justify assessing the land.

CONSOLIDATED EXPENDITURES AND CREDITS

Mr. CANNON. Will you also explain the consolidated expenditures and credit item on page 125?

Mr. DOMINY. Yes. I would like Assistant Commissioner Golze to explain that item.

Mr. CANNON. I am unable to understand this, Mr. Commissioner. Reading it, I doubt whether anyone would understand it. Suppose you include in your transcript when it comes to you a discussion and explanation of this consolidated expenditures and the credits of $83,852.

Mr. DOMINY. We shall be happy to.
(The information requested follows:)

EXPLANATION OF CONSOLIDATED EXPENDITURES AND CREDITS ITEM

The item titled "Consolidated expenditures and credits" is a net figure representing the sum of several relatively minor accounts which must be taken into consideration in reconciling the program to be performed in fiscal year 1961 with the appropriations required in that year. In general, this figure deals with the distribution to project features of the cost of materials, services, or equipment paid for in prior years and being distributed currently to the project features on a use basis, or items for which funds must be secured in the current year although their full benefits may be reflected in future years.

The total of $83,852 in fiscal year 1960 includes—

$62,000 for general project investigations to be performed currently but to be distributed as a cost to the features involved in future years when they are placed under construction.

—$20,000 represents the distribution to project features during fiscal year 1961 of the cost of stores purchased in prior years in excess of the amount being purchased currently. The negative figure indicates that fiscal year 1961 appropriations will not be required since these stores have already been paid for.

—$31,148 this also represents the distribution of prior-year costs which have been accumulated in clearing accounts and are being charged out as the work progresses, but which do not require an appropriation in fiscal year 1961 because the expenditures were made in prior years.

$73,000 represents principally the value of materials and equipment transferred to other Bureau projects without return of funds from the receiving project (nonappropriation transfer). Since such transfers are recorded as a reduction elsewhere in the Bureau program, this offsetting entry is required to arrive at the correct appropriation for the current year.

The sum of these adjustments is the $83,852 identified in the justifications.

TOTAL APPROPRIATION FOR CENTRAL VALLEY

Mr. JENSEN. Mr. Dominy, would you furnish for the record the total amount which Congress has appropriated to date for the Central Valley project, the entire project, including the amount which you are requesting for fiscal 1961?

Mr. DOMINY. That information is on BR–118, Mr. Jensen.

Mr. JENSEN. All right.

Mr. DOMINY. In the right-hand corner under "Summarized financial data." The appropriations to June 30, 1959, were $558,301,990. Appropriations for fiscal year 1960, $40,373,554. The appropriations required for fiscal year 1961 are $61,306,100.

Mr. JENSEN. Making a grand total of how much?

Mr. DOMINY. It is about $660 million, roughly.

Mr. JENSEN. What part of this is reimbursable?

Mr. DOMINY. Including the balance to complete, of $155 million more, which would bring it up to $817,886,082, the amount to be repaid by irrigators is $273,035,000. The amount to be repaid by power is $430,574,000. The amount to be repaid by municipal and industrial water is $28,714,000. The amount to be repaid by reimbursable fish and wildlife is $2,568,000.

Mr. JENSEN. Leaving a nonreimbursable amount of how much?

Mr. DOMINY. $63 million, roughly.

Mr. JENSEN. That is made up of what items?

Mr. DOMINY. $48,535,000 of it is flood control. The remaining is nonreimbursable fish and wildlife in the amount of $14,179,000, and nonreimbursable recreation in the amount of $250,000.

Mr. JENSEN. Mr. Chairman, the reason I asked for those figures is that fact that I want the record to show that the State of California has received, I think, more than its share of the appropriations for projects. I know that the Central Valley project has been of great value to that State.

Now my question is: Is the State of California making any bona fide offers to take over this project and to pay a certain amount for it? Did they make such a proposition at one time a number of years ago?

Mr. DOMINY. There was some discussion with regard to that possibility a few years ago, Mr. Jensen, but it did not result in agreement on provisions which would have been to the advantage of the United States.

I should like to point out that I agree fully that this is a major undertaking on behalf of California by the Federal Government. But the Central Valley project, cost- and repayment-wise, remains one of the best arrangements we have anywhere. For example, every dime of Federal funds that go into distribution system construction is repaid in full, without power assistance, by the irrigators. Also, I know of very few projects being built anywhere by the Federal Government that have as high a portion of the total expenditure in a multiple-purpose project being returned, the power and municipal water with interest and irrigation without interest, as is true here. Less than 10 percent of this project, only about 7½ percent of it, is nonreimbursable appropriation to nonreimbursable functions.

Mr. JENSEN. I agree with the statement of the gentleman. Now let me ask this question: When in the future can we expect that the Central Valley project will be completed and that no more requests will be made of the Congress for funds for this mammoth project?

SAN LUIS EXTENSION

Mr. DOMINY. There are two significant proposals to extend the Central Valley project which are in the making at the moment. One involves the San Luis project extension which is before the legislative committees of the Congress for action at the moment. It has passed the Senate and has been reported out favorably by the House committee and is before the Rules Committee at the moment.

EAST SIDE CANAL EXTENSION

The second involves the East Side Canal, which would be a second major conveyance system down into the valley above the present Friant-Kern Canal system. As reclamation water resource development projects go, we feel that the one well justified and which has the support of the administration, is the San Luis proposal. We are still studying the East Side Canal. I have every reason to believe that it, too, will show good engineering and economic feasibility and pay out. If it does, it undoubtedly would be recommended.

I am sure Mr. Jensen is well aware that the State of California is, next to Florida and Virginia, growing more rapidly than any other area of the United States and, being an arid area primarily, this growth potential is predicated pretty largely on wise use and development of the State's water resources.

Mr. JENSEN. Yes, indeed; I recognize that. I think you heard me say this morning that water is liquid gold in many areas, not only around the world but in our Western States. I am sorry we did not

recognize that fact long, long before we did. We are now fully aware that water, good, pure water, is the most essential thing the people have to use, and that is becoming quite a problem everywhere. In some places we have too much of it, of course.

Mr. DOMINY. I think the record should show also that the State is demonstrating that within its own resources it wants to participate actively in solving its own problems. It has a very active interest in water and has proposed to participate on a State basis to extend the San Luis project, for example.

WATER USERS OPERATIONS

Mr. JENSEN. Have you turned over any of these projects to the local benefactors?

Mr. DOMINY. The distribution systems which actually serve the individual farms in all the Central Valley project are turned over to the water users immediately after they are constructed. We have operated none of the distribution systems in the Central Valley project area.

Mr. JENSEN. And that is what you propose to do with all of the projects where it is possible to do that?

Mr. DOMINY. Yes, indeed.

Mr. JENSEN. So we can look forward to the time when all of these projects, where it is possible and proper, will be turned over to the local people and the obligation of the Federal Government will be zero.

Mr. DOMINY. We intend to continue the policy which Congress has repeatedly advised us is the congressional policy, of getting the irrigation features of these projects turned over to the local irrigation district officials as rapidly as physically and practically possible. In the case of the Central Valley project, because of its close integration with power and because we serve so many separate purposes and entities from the principal features, such as the storage dams and the main pumping plants and the long supply canals, while we are not committed to the view that these multiple use features cannot sometime be turned over to the water users, I certainly cannot give the Congress any definite idea as to when that might be practical of achievement.

Mr. JENSEN. I realize that, but of course we are hoping that the time will come when every project which it is possible to turn over to the local beneficiaries will be turned over to them.

Mr. DOMINY. We agree fully with that.

Mr. JENSEN. That is all, Mr. Chairman.

Mr. TABER. I do not think I have any questions.

LEWISTON FISH FACILITIES

Mr. PILLION. Mr. Commissioner, on page 121 I note the item of Lewiston fish facilities, $521,286. Is that a necessary project?

Mr. DOMINY. It is a requirement of project authorization. In connection with the Trinity authorization, this was agreed to as part of the project. It is part of the total project costs. The complete field data will be submitted on the Lewiston Dam and Lewiston Fish Hatchery in the spring of 1960, and contracts are expected to be awarded in the winter of 1960–61 for construction.

Mr. PILLION. What is the total cost?

Mr. DOMINY. The total cost is $1,925,000, Mr. Pillion.

Mr. PILLION. Why should the U.S. Government build fish hatcheries for the State of California? I realize it is probably a policy question, but States like New York build their own fish hatcheries, and I see no reason why we should spend $2 million for a fish hatchery in California.

Mr. DOMINY. The reason, as explained during the consideration of the authorizing act, was that the Trinity Dam would interfere with the greyling and salmon run on the Trinity River, and to offset the losses the fish facilities would be provided as a part of the project cost. This is the basic reason behind its inclusion, Mr. Pillion.

NEW STARTS

Mr. PILLION. There are many new starts in this fiscal year 1961 appropriation. All these appropriations for 1961 are not such that you could not break them up and defer some of these projects. Suppose you deferred $20 million of some of these projects, to bring it down to last year's appropriation of $40 million instead of $61 million, there is no reason that you cannot take out any number of these projects and defer them, is there? They are not all interdependent, one upon the other.

Mr. DOMINY. Within the Trinity Division they are interdependent, one upon the other. There are additional features in this Central Valley budget separate and apart, such as some of these distribution systems, which of course could be deferred. Many of them have been put off for one reason or another for quite a while. The Corning distribution system and the Proberta distribution system have been postponed now for some 6 or 8 years for reason of one problem after another. It just happens that all of those are now coming to fruition and the stumbling blocks are being removed. Of course, if we are going to put the project to work we need to add those features.

Mr. PILLION. Suppose we were to defer, say, $15 million worth, where would you defer it? Can you make a listing of the ones which are least essential to your program?

Mr. DOMINY. In response to a question the chairman proposed on the opening day of our hearing, we are working up a list of items that, in our judgment, would be deferred first if it were the Congress' desire to reduce the overall budget to such a figure. That will be included in the committee record. We may not have any Central Valley items in that, Mr. Pillion. We shall get the ones that we think could be deferred with the least damage in putting the various projects to work in accomplishing the benefits they are designed to serve.

SAN LUIS PROJECT

Mr. PILLION. Mr. Commissioner, the San Luis project is roughly how much in total cost?

Mr. DOMINY. The total estimate cost of the San Luis project in California is $290,443,000, exclusive of the distribution system which is proposed for either Federal or non-Federal construction.

Mr. PILLION. I wonder if I could clarify just a minute my thinking on these reclamation projects. Take the irrigation distribution system. You say that is built ordinarily with Federal funds, and

after it is built it is turned over to the irrigators for operation and maintenance. Does that mean the title is turned over to them, even though we have our money invested in them, and they repay us over the course of 50 or 60 years? Do they get title to that completely?

Mr. DOMINY. No, sir. Under the reclamation law, Mr. Pillion, we cannot transfer title to them, even after it is paid for in full, without a special act of Congress.

Mr. PILLION. I see. That is what I was driving at. At the conclusion of the repayment in full for an irrigation distribution system and we have put into that system Federal funds without interest—in fact, some of it is paid for by power allocations instead of their payment in full—is that turned over to them ordinarily without any charge thereafter and they no longer pay anything to the Federal Government?

Mr. DOMINY. That is correct, sir. They have to pay their construction charges, of course.

Mr. PILLION. I was going to say they get a very good deal on that.

Now take a dam and a hydroelectric power station built by the Federal Government. Title to that is in the Federal Government. Suppose that is fully repaid. I say fully repaid under the terms, although I do not think it is repaid with the low interest rate. When that is fully repaid, who owns that dam, reservoir, and the hydroelectric power machinery?

Mr. DOMINY. That still belongs to the Federal Government, and the revenues would continue to be placed in the Federal Treasury.

Mr. PILLION. I want the record to show that, because I think there is some sentiment and idea around the West that as soon as the repayment is made for those facilities, then that ought to be given over as a gift to the people in that area, which is very much against what I think to be a just policy, because the Federal Government certainly is not getting repayment in kind in a 60-year contract, considering inflation, when it gets back one-third or one-quarter of what it gave out in value.

So I would like the record to show that there should be no sentiment or thought in the minds of the people in those areas that once this is paid, the Federal Government will then turn the facility over to the States or to the local people free, on the theory they have paid for it and it no longer belongs to the Federal Government.

In irrigation matters, I think I fully agree with the thought and policy expressed here; but in these other matters, I think the record ought to show the exact situation.

Mr. DOMINY. We are glad to have an expression of your views, Mr. Pillion. I think the Reclamation Project Act of 1939, supplemented by the Hayden-O'Mahoney amendment dealing with the payment of power revenues into the reclamation fund of the Treasury, amply supports the views you have set forth.

Mr. PILLION. Thank you very much. I just wanted clarification of that.

TRINITY POWER FACILITY

Mr. RABAUT. I want to go back to this Trinity power facility. Last year Mr. Cannon asked you the question, Mr. Dominy, how much would you need for the Trinity power, and you said:

> We would need about $2,415,000 for fiscal 1960 if we are to plan to build the Trinity power features by the Bureau of Reclamation.

How come you are only using $920,000? Is there a slowdown here or something? What is going on?

Mr. DOMINY. No, sir; there was no slowdown. Mr. Rabaut, you will recall that our Appropriation Act was passed rather late in the fiscal year, and the decision had not been made until the Appropriation Act was passed as to whether this was to be a Federal expenditure for the power features or whether we were to deal with a partnership approach. As a result of the late passage of the bill, we actually did not get our work advanced to the point that we could make as much contract earnings as we had originally contemplated.

We still think we shall be able to get the power on the line and have the work done by the time we finish the dam and get the reservoir full of water, however.

Mr. RABAUT. Then the record goes on:

> That would be the 1960 budget?
> Mr. DOMINY. Yes, and in 1961 it would require financing in the range of $22 million.

Actually this year you are asking for only $12,800,000.

Mr. DOMINY. Yes, sir.

Mr. RABAUT. Do you anticipate you are going to receive it late this year, too, or what?

Mr. DOMINY. No, sir. What I discovered after I had gotten into that in detail was that the estimate was based on the practically full cost of fabricating the generators and turbines, and that we did not really have to have all of that within fiscal 1961. As we could make progress payments, we would not require quite as much as I had originally thought.

Mr. RABAUT. All right.

WEDNESDAY, MARCH 2, 1960.

COLLBRAN PROJECT, COLORADO

Mr. RABAUT. The Collbran project, $5,140,000. Insert pages 133 through 137.

(The pages referred to follow:)

PROJECT DATA SHEET
LOCATION
Colorado River Basin, West-central Colorado in Mesa County
BUREAU OF RECLAMATION
PF: 65

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Colorado River Basin, West-central Colorado in Mesa County

AUTHORIZATION Act of July 3, 1952 | B/C RATIO 1.37 | Date Sept. 3,1959

LAND CERTIFICATION By Secretary Sept. 4, 1952 and March 24, 1959 | DEFINITE PLAN REPORT Revised April 1956

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 15,685,000	Appropriations to June 30, 1959	$ 5,715,108
Net Property and Other Transfers	305,000	Appropriations for F. Y. 1960	4,295,730
Cash Advances--Non-Federal		Appropriations to Date	10,010,838
Adjustment	3/ 432,000	Initial Underfinancing F. Y. 1960	91,770
		Appropriations Required for F. Y. 1961	5,140,000
Total to be Allocated	$ 16,422,000	Balance to Complete after F.Y. 19 61	$ 442,392

ALLOCATIONS 4/

Irrigation	$ 6,013,000
Power 3/	10,163,000
M. & I. Water	
Flood & Nav.	
Fish & Wildlife	100,000
Other 2/	146,000
Total	$16,422,000

REPAYMENT

Amount Repaid by Irrigators 1/	$ 1,070,000
Amount Repaid by Power 3/	15,106,000
Amount Repaid by M. & I. Water	
Non - Reimbursable	246,000
Total	$16,422,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 271
Repayment of Investment per acre:	
By Irrigators	$ 48
By Power Revenues	223
By M.& I.Water Users	

Payment Capacity per Acre	$ 1.90
Annual Charges:	
O. & M.	$ 0.94
Construction	0.96
Total	$ 1.90

STATUS OF REPAYMENT CONTRACT
Contract No. 14-06-400-595 was executed with the Collbran Conservancy District May 27, 1957.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Vega Dam and Reservoir	33,800 AF	85	3-61	Bonham-Cottonwood Pipeline	11.0 mi.	18	8-61
Southside Canal, Sta. 14/71.46 to 1146/49	18.0 mi.	80	3-61	Upper Molina Powerplant and Switchyard	8,640 kw.	17	10-61
Southside Canal, Sta. 1146/49 to 1760/11	11.6 mi.	17	7-61	Lower Molina Powerplant and Switchyard	4,860 kw.	11	10-61
Bonham Dam and Reservoir	1,300 AF	5	8-61	Transmission Lines	22.5 mi.	7	8-61
Grand Mesa Reservoirs Rehab.	5,800 AF	72	8-61	Cameo Switching Station (DeBeque Substation)	69 kv.	2	8-61
Temporary Camp		93	12-60				

Acreage Full Supply 2,459 Supplemental Supply 19,751 Total Acres 22,210 Power kw 13,500

Region	Date	Project and State
4	1-18-60	Collbran Project, Colorado

Footnotes appear on the following page.

BR-133

Repayment period by irrigators is 50 years.
[2] Includes $104,000 nonreimbursable CRDF and $42,000 Forest Service contribution.
[3] Includes $432,000 reimbursable interest during construction allocated to power.
[4] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$4,682,000	$6,013,000
Power	10,443,000	10,163,000
Fish and wildlife	100,000	100,000
Other	137,000	146,000
Total to be allocated	15,362,000	16,422,000

Total to be allocated increases as a result of net increase in obligations partially offset by reduction in reimbursable interest during construction associated with savings in cost of power facilities. Increase in irrigation caused by increased obligations on specific irrigation facilities. Decrease in power allocation is from savings in cost of specific power facilities.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.21.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.25.

Agricultural production present and future

Ninety-five percent of the irrigated lands in the project area is devoted to the production of hay and small grains to be used as livestock feed. The remaining 5 percent produces vegetables and fruits, mostly for home consumption. It is not anticipated that development of the project will result in any major change in the agriculture.

JUSTIFICATION

Description.—The project is located in west-central Colorado. It will provide a full water supply for the irrigation of 2,459 acres of new land, and a supplemental supply for 19,751 acres of inadequately irrigated land, and a power generation of 13,500 kilowatts. The project will also benefit fish and wildlife, and recreation.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Vega Dam and Reservoir, $441,172.—The program provides for completion of all work related to Vega Dam and Reservoir.

Southside canal, station 14+71.46 to 1146+49, $498,975.—Provides for the completion of all work on this section of the Southside canal.

Southside canal, station 1146+49 to 1760+11, $415,000.—For continued construction of this section of the Southside canal.

Bonham Dam and Reservoir, $190,000.—This program provides for completion of designs and specifications and award of contracts for the Bonham Dam and East Fork feeder canal.

Grand Mesa Reservoirs rehabilitation, $29,853.—This amount provides for completion of designs and specifications, and award of contract.

Bonham-Cottonwood pipeline, $1,189,000.—Construction will continue on this feature of the project.

Upper Molina powerplant and switchyard, $1,148,000.—For continued construction on all features.

Lower Molina power plant and switchyard, $968,000.—For continued construction on all features.

Transmission lines, $212,000.—The program provides for award of contracts on the transmission lines early in fiscal year 1961, with construction to continue throughout the fiscal year.

Cameo switching station (DeBeque substation), $79,000.—This amount is for continued construction of this feature.

Temporary camp, $10,817.—Provides for the cost of minor equipment materials and maintenance of the temporary camp located in Collbran, Colo.

Service facilities, depreciation and salvage, −$41,817.—Represents minor equipment acquisitions of $4,100 more than offset by $45,917 of prior costs of service facilities which will be distributed to permanent property.

Change in total obligations

	Obligations
1960 congressional justification	$14,470,000
1961 congressional justification	15,685,000
Increase	1,215,000

Increase is due to actual construction bids being higher than the estimate by $247,000 on Southside canal, first schedule, and by $202,000 for the Bonham-Cottonwood pipeline; increase of $387,000 in cost of Southside canal, schedule 2, due to changes in location and more recent design data; increase of $1,467,000 to reflect a more realistic estimate of engineering, project administrations and other associated costs; increase of $404,000 for addition to an operating power and telephone line, contract earnings and right-of-way on Vega Dam and Cottonwood access road; for a total increase of $2,707,000. This total increase is partially offset by a decrease of $1,327,000 due to the actual bid price on the upper and lower Molina powerplants and generators and other powerplant equipment; and a decrease of $165,000 for elimination of purchase of water rights not now considered necessary, reduced estimate of the Leon-Park feeder canal due to realinement, and other minor adjustments in the estimates; for reductions totaling $1,492,000, leaving a net increase in total estimated obligations of $1,215,000.

Schedule of construction program, fiscal years 1960 and 1961, Collbran project, Colorado

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Vega Dam and Reservoir	$3,920,690	$2,828,828	$650,690	$441,172	
Southside canal:					
Station 14+71.46 to 1146+49	2,919,000	847,025	1,573,000	498,975	
Station 1146+49 to 1760+11	836,000	133,389	274,000	415,000	$13,611
Bonham Dam and Reservoir	282,000	11,886	9,000	190,000	71,114
Grand Mesa reservoirs rehabilitation	213,000	126,285	31,146	29,853	25,716
Bonham-Cottonwood pipeline	2,238,000	164,555	836,000	1,189,000	48,445
Upper Molina powerplant and switchyard	2,824,320	255,965	1,288,320	1,148,000	132,035
Lower Molina powerplant and switchyard	2,342,990	181,118	1,075,490	968,000	118,382
Transmission lines	283,000	8,421	31,000	212,000	31,579
Cameo switching station (DeBeque substation)	131,000	2,881	40,000	79,000	9,119
Temporary camp	267,747	245,930	11,000	10,817	
Service facilities, depreciation, and salvage	−267,747	−5,321	−33,000	−41,817	−187,609
Consolidated expenditures and credits	−305,000	−256,817	−228,183		180,000
Total expenditures	15,685,000	4,544,145	5,558,463	5,140,000	442,392
Undelivered orders		1,104,498	−1,104,498		
Total obligations	15,685,000	5,648,643	4,453,965	5,140,000	442,392
Method of financing:					
Appropriation, fiscal year 1960			4,295,730		
Application of prior year funds			66,465		
Initial underfinancing			91,770		
Appropriation required				5,140,000	442,392

Mr. RABAUT. On this project you have increased the allocation to irrigation by $1½ million and reduced the repayment by irrigators from $52 to $48 per acre. Power revenues were previously scheduled to pay approximately four-fifths of the irrigation repayment. Now it is up to six-sevenths. Why is that?

Mr. DOMINY. The irrigation repayment remains fairly constant here. The total to be allocated increases as a result of net increase in obligations, partially offset by reduction in reimbursable interest during construction associated with savings in cost of power facilities. The increase in irrigation is caused by increased obligations on specific irrigation features. The decrease in power allocation is from savings in cost of specific power facilities. That is based on actual bid prices on the various features of the work.

The increase is due to actual construction bids being higher than the estimate by $247,000 on Southside Canal, first schedule, and by

$202,000 for the Bonham-Cottonwood pipeline; increase of $387,000 in cost of Southside Canal, schedule 2, due to changes in location and more recent design data; increase of $1,467,000 to reflect a more realistic estimate of investigations, engineering, project administrations and other associated costs; increase of $404,000 for addition to an operating power and telephone line, contract earnings and right-of-way on Vega Dam and Cottonwood access road; for a total increase of $2,707,000. This total increase is partially offset by a decrease of $1,327,000 due to the actual bid price on the upper and lower Molina powerplants and generators and other powerplant equipment; and a decrease of $165,000 for elimination of purchase of water rights not now considered necessary, reduced estimate of the Leon-Park feeder canal due to realinement, and other minor adjustments in the estimates; for reductions totaling $1,492,000, leaving a net increase in total estimated obligations of $1,215,000.

POWER RATES

Mr. RABAUT. Last year you said your power would have to be sold at 8.86 mills, but with the increase of $1 million which power must pay out, at what figure will you have to sell the power and what assurance do you have that you can sell it?

Mr. DOMINY. We have, as we explained last year, the assurance from local power companies that they will take this power at the rates we know will be realized, of about 8.8 mills. We also explained last year that we recognize that when the Colorado storage project is in being and the anticipated general rate which will prevail in the marketing area will be about 6 mills, at that point in time there will have to be consideration given to incorporating the Collbran project into the Colorado storage project. We recognize there will be an island of high-cost power here and that it will not be possible to continue indefinitely to live with that discrepancy which will exist in this area after Colorado storage project power becomes available.

Mr. JENSEN. Mr. Dominy, have the power users indicated that they would pay 9 mills per kilowatt-hour for power at the bus bar?

Mr. DOMINY. Actually the figure we have computed is 8.8 mills. We have from the Public Service Co. of Colorado and from the Grand Valley Rural Power Lines, Inc., at Grand Junction, and from the Colorado-Ute Electric Association, indications that they are prepared to utilize the Collbran power at these rates.

Mr. JENSEN. And they will buy it?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. How much of it?

Mr. BENNETT. The entire output.

Mr. JENSEN. Is your additional estimated cost figured into your 8.8 mills?

Mr. BENNETT. The power allocation has actually gone down a little, Mr. Jensen. The power rate is based upon the amortization and the operation and maintenance costs of the power investment. That is where we get the 8.8 mills. Just recently this Colorado-Ute Electric Association, which is a preference customer type in the area, has come to us and wants to buy by itself the entire output of that powerplant at those rates.

Mr. JENSEN. I will believe it when I see their name on the dotted line. I am not saying that they will not keep their word, but when

we know they can produce power by steam, using coal or gas, for less than half that amount, then they must figure on getting benefits from some other source from this project, or surely their board of directors will say, "Let us wait a minute. How can we pay twice as much for hydropower as we can produce thermal power for?" When the entire board meets and takes this into consideration, I am afraid you will find that there is a different story.

If we are to appropriate this money—and the project, of course, is well on its way, and I know there is no use trying to stop it—I have never before heard of any private utility company or anyone else that is willing to pay 8.8 mills for power at the bus bar.

(Off the record.)

WEDNESDAY, MARCH 2, 1960.

MINIDOKA PROJECT, IDAHO

Mr. RABAUT. Minidoka project, $429,000. Insert pages 138 through 142.

(The pages referred to follow:)

PF-65 (7-59) BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Columbia River Basin, South Central Idaho, Minidoka and Jerome Counties, near Rupert, Idaho

AUTHORIZATION Act of September 30, 1950 | B/C RATIO 4.77 | Date Dec. 1959

LAND CERTIFICATION 1/ By Secretary 8-18-52, 8-8-56 and 11-10-59 | DEFINITE PLAN REPORT Approved by Commissioner 8-29-55

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 11,395,000	Appropriations to June 30, 1959	$ 9,758,209
Net Property and Other Transfers	859,689	Appropriations for F. Y. 1960	797,550
Cash Advances--Non-Federal		Appropriations to Date	10,555,759
Adjustment	2/ 826,466	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 1961	429,000
Total to be Allocated	$ 13,081,155	Balance to Complete after F.Y. 1961	$ 410,241

ALLOCATIONS 3/

Irrigation	$ 13,081,155
Power	
M. & I. Water	
Flood & Nav.	
Total	$ 13,081,155

REPAYMENT

Amount Repaid by Irrigators	$ 12,650,579
Amount Repaid by Power	
Amount Repaid by M. & I. Water	
Credits	4/ 430,576
Non - Reimbursable	
Total	$ 13,081,155

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 166	Payment Capacity per Acre	$ 15.00 3/
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 161	O. & M.	$ 10.68
By Power Revenues		Construction	3.22
By M & I Water Users			
Credits	5	Total	$ 13.90

STATUS OF REPAYMENT CONTRACT: Division is in Public Lands. Formation of Irrigation District is scheduled to be accomplished by July, 1960. Proposed repayment contract, calling for all costs to be recovered in 50 years, to be executed by November, 1961.

PRINCIPAL FEATURES

Unit A:	Size or Cap.	Completion % 1-1-60	Completion Date	Unit B: (Continued)	Size or Cap.	Completion % 1-1-60	Completion Date
Main Pumping Plant	240 cfs	100	3-59				
Main Canal	240 cfs	100	6-58	Laterals	64,754 acres	91	6-62
Laterals	13,842 acres	98	6-60	Drains	373 Mi.	87	6-63
Drains		87	6-61	Pumping Substations		75	6-63
Pumping Substations		89	6-60	Permanent Operating Facilities		78	6-62
Unit B:							
Deep Wells	182 wells	85	6-63				

Acreage Full Supply 78,596 | Supplemental Supply None | Total Acres 78,596 | Power kw —

Region	Date	Project and State
1	1-18-60	Minidoka Project, North Side Pumping Division, Idaho

BR-138

[1] The Secretary has made the following land certifications: Aug. 18, 1952 for 69,500 acres; Aug. 8, 1956 for 11,250 acres; and Nov. 10, 1959 for 625 acres for a total of 81,375 acres. The revised project plan is for the development of 78,596 acres, all of which are covered by certification.

[2] Includes assigned costs of $71,000 from American Falls Reservoir and $698,000 from Palisades Reservoir. Also includes $57,466 of deferred O. & M. costs to be repaid as a construction obligation.

[3] Unadjusted payment capacity as derived in the February 1955 definite-plan report.

[4] Includes $352,535 for Jackson Lake sale of storage and water rental, $52,365 for rental of American Falls space for power, and $25,676 for rental of grazing lands.
[5] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$13,079,569	$13,081,155
Total to be allocated	13,079,569	13,081,155

Total to be allocated and irrigation allocation have increased as a consequence of the addition of requirement for supplemental construction on the existing wells to stabilize their capacity, largely offset by an increase in the estimated cost credits from the salvage of equipment.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 2.06.
Benefit-cost ratio based on total benefits and 3 percent interest is 4.46.

Agricultural production present and future

The crops of this project consist of cereals, forage, miscellaneous field crops, vegetables, seed, and gardens. It is anticipated that there will be very little change in the crop pattern in the future.

JUSTIFICATION

Description.—This division of the Minidoka project will deliver a full water supply to 78,596 acres of semiarid land lying in south central Idaho.
Appropriation title.—"Construction and Rehabilitation."

WORK PROPOSED, FISCAL YEAR 1961

Unit A

Drains, $1,500.—Program provides for completion of seeding of drain banks.

Unit B

Deep wells, $360,808.—The program provides for completion of 12 wells and will continue the program of modification of existing wells to stabilize and increase their production capacity.
Laterals, $82,812.—The lateral program provides for the completion of the lateral system for 12 wells and for continuing the ditch bank seeding program.
Drains, $42,685.—These funds will provide for continuing the drainage work as required by field developments and continuing the drain bank seeding program.
Pumping substations, $188,340.—Pumping substations will be provided for the 12 new wells mentioned under the deep well program above. The programs to equip substations with power factor improvement equipment and modify existing substations will continue.
Permanent operating facilities, $20,488.—This amount will provide for the purchase of permanent project operating equipment and minor work on permanent facilities previously constructed.
Service facilities, depreciation, and salvage, —$20,000.—Represents prior costs of work equipment and other temporary service facilities charged to the permanent properties.
Consolidated expenditures and credits, —$31,833.—Represents $17,833 of stores items that will be used on the project features during the year and the distribution of $14,000 in deferred costs which were incurred in prior years.
Undelivered orders, —$215,800.—Represents liquidation of prior year obligations.

Change in total obligations

	Obligations
1960 congressional justification	$11, 395, 000
1961 congressional justification	11, 395, 000
No change	

Schedule of construction program, fiscal years 1960 and 1961, Minidoka project, North Side pumping division, Idaho

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Unit A:					
Main pumping plant	$834, 601	$833, 987	$614		
Main canal	108, 541	108, 541			
Laterals	692, 453	664, 282	28, 171		
Drains	153, 622	149, 262	2, 860	$1, 500	
Pumping substations	15, 962	14, 162	1, 800		
Unit B:					
Deep wells	5, 162, 736	4, 231, 986	264, 735	360, 808	$305, 207
Laterals	2, 154, 421	1, 972, 032	89, 577	82, 812	10, 000
Drains	990, 751	847, 883	60, 870	42, 685	39, 313
Pumping substations	1, 433, 587	1, 079, 937	108, 903	188, 340	56, 407
Permanent operating facilities	655, 506	506, 765	109, 808	20, 488	18, 445
Temporary camp	16, 539	16, 539			
Service facilities, depreciation and salvage	−16, 539	62, 878	−8, 000	−20, 000	−51, 417
Other project costs	52, 509	52, 509			
Consolidated expenditures and credits	−859, 689	−823, 221	−36, 921	−31, 833	32, 286
Total expenditures	11, 395, 000	9, 717, 542	622, 417	644, 800	410, 241
Undelivered orders		3, 894	211, 906	−215, 800	
Total obligations	11, 395, 000	9, 721, 436	834, 323	429, 000	410, 241
Method of financing:					
Appropriation, fiscal year 1960			797, 550		
Application of prior year funds			36, 773		
Appropriations required				429, 000	410, 241

Mr. RABAUT. No questions.

Mr. JENSEN. Is there any part of this pumping division in actual operation at this time and, if so, why were repayment contracts not executed prior to such operations?

Mr. DOMINY. That, Mr. Jensen, is a very easy question to answer, and I am glad you raised it.

Mr. JENSEN. Good.

Mr. DOMINY. This is a public lands project, and under the law we can deliver water for 10 years during a development period without a contract. We are not required, either by reclamation law or instructions from your committee, in the case of public lands projects to obtain a contract in advance because we have nobody to deal with. But we are getting the land settled, and it is a very fine project.

Mr. JENSEN. Are there any private pump irrigation developments in the general area and, if so, what is the total acreage involved? You may furnish that for the record.

(The information requested follows:)

PRIVATELY OWNED PUMPING FACILITIES IN THE GENERAL AREA OF THE MINIDOKA PROJECT, NORTH SIDE PUMPING DIVISION

Prior to 1948 there was little interest in the development of ground water for irrigation in the area in question. The 1950 Census of Agriculture shows that approximately 4,600 acres in the Snake River drainage area, between Milner Dam and American Falls Dam, were being irrigated by pumping from wells. Since that time irrigation by ground water pumping has noticeably increased. By the early 1950's applications had been filed by private interests, with the Department of Reclamation, State of Idaho, to appropriate ground water in quantities indicative of possible development of an estimated 28,000 acres. In one instance a single corporation is known to have made application for ground water sufficient to irrigate about 15,000 acres. About 40,000 acres are now being irrigated by private pumping developments. These lands are situated north of Milner, Paul, and Rupert and are generally proximate to the North Side pumping division.

In contrast with such private development, the North Side pumping division encompasses an area of 78,596 acres, 74,642 of which had project irrigation facilities available in 1959. It should be noted that, at the time of project authorization, the preponderant portion of the total acreage involved was in the public domain. In fact, the six public notices thus far issued opening public lands to settlement on the North Side pumping division have additionally announced the availability of project water to private lands totaling only about 2,200 acres. It should further be noted that these private lands are held in 25 separate farm units situated in unit A of the division where water is provided by pumping from the river rather than from the ground water as in the case of the unit B lands, which make up the remainder of the North Side pumping division.

In consideration of the large area of public domain lands constituting the major portion of the North Side pumping division, irrigation development was planned, and has thus far been effectuated in such a manner as to provide for settlement opportunities on the basis of family size farms consistent with the controlling provisions of reclamation and homestead laws.

POWER RATES FOR IRRIGATION PUMPING

Mr. JENSEN. What are the comparative rates for pumping power as charged by the Bureau and private power companies in this area after excluding Federal and other taxes not included in the Bureau rates? You may furnish this for the record, too. Do the Bureau rates for any of the pumping power also exclude interest cost on the power allocated for such pumping? If so, what is the resulting subsidy per kilowatt-hour?

Mr. DOMINY. We can give you a statement on that, sir.

Mr. JENSEN. You may elaborate on that. I think it will take a little time for you to think that over and answer those questions properly.

Mr. DOMINY. We shall be happy to undertake it, Mr. Jensen.

(The information requested follows:)

MINIDOKA PROJECT—NORTH SIDE PUMPING DIVISION

COMPARATIVE RATES FOR PUMPING POWER, BUREAU OF RECLAMATION VERSUS PRIVATE COMPANIES

The basic Bureau rate for Federal project pumping power in this area is 3 mills per kilowatt-hour. However, practically all of this power is wheeled over private power company lines and the wheeling cost varies as to voltage and distance. During the past years this cost has averaged approximately 1.7 mills. The customer has to pay this additional cost. In other words, the Bureau delivered power for pumping purposes for a total cost to the consumer of approximately 4.7 mills per kilowatt-hour.

Under its rate schedule 24 dated May 7, 1954, and at an 85-percent load factor, the Idaho Power Co. rate per kilowatt-hour averages 7.6 mills. The Idaho Power Co. 1958 annual report states that 25.8 percent of its 1958 revenue dollar was used for taxes. Using this figure, it develops that 1.9 mills of the 7.6 mills would be for taxes. Therefore, its rate would be 5.7 mills as compared with the Bureau's rate of 3 mills, both rates exclusive of taxes. Idaho law provides that Idaho State ad valorem taxes on portions of private utility systems devoted to irrigation service be refunded to the irrigation customer. In calendar year 1959 the refund in the Minidoka area amounted to an average of 0.96 mill per kilowatt-hour, making an average cost to the customer of 6.64 mills per kilowatt-hour as compared with the 4.7 mills it pays for Bureau power.

The Bureau rate excludes interest on the power cost allocated to pumping power. If interest were added at 3 percent and assuming amortization in 50 years, the basic 3-mill rate would be increased to 3.32 mills per kilowatt-hour with presently constructed facilities.

	Private power company	Bureau of Reclamation
Basic rate	7.6	3.0
Taxes in rate (includes ad valorem)	1.9	0
Ad valorem tax refunded to irrigator	.96	0
Wheeling costs to irrigator	0	1.7
Cost to irrigator without taxes	5.7	4.7
Amount rate would increase if interest of 3 percent added	0	.32

WEDNESDAY, MARCH 2, 1960.

WASHOE PROJECT, NEVADA-CALIFORNIA

Mr. RABAUT. Now we shall take the Washoe project, $3,137,000. Insert pages 144 through 148.

(The pages referred to follow:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION In the Truckee River and Carson River basins in western Nevada and eastern California, in the vicinity of Reno, Nevada.

AUTHORIZATION P. L. 858, 81th Congress, 2nd Session and P.L. 85-706, 85th Congress, 2nd Session

B/C RATIO Prosser Creek 1.5 Washoe 1.7 **Date** 4-1-59

LAND CERTIFICATION Scheduled for January 1961

DEFINITE PLAN REPORT Scheduled for submission September 1961.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 50,547,000	Appropriations to June 30, 1959	$ 800,000
Net Property and Other Transfers	1,698,000	Appropriations for F. Y. 1960	678,750
Cash Advances--Non-Federal		Appropriations to Date	1,478,750
Adjustment	1/ -46,287,000	Initial Underfinancing F. Y. 1960	-
		Appropriations Required for F. Y. 1961	3,137,000
Total to be Allocated	$ 5,958,000	Balance to Complete after F.Y. 1961	$ 45,931,250

ALLOCATIONS 2/

Irrigation	$
Power	
M. & I. Water	
Flood & Nav.	4,493,000
Fish & WL	1,407,000
Recreation	58,000
Total 1/	$ 5,958,000

REPAYMENT

Amount Repaid by Irrigators	$
Amount Repaid by Power	
Amount Repaid by M. & I. Water	
Non - Reimbursable 1/	5,958,000
Total	$ 5,958,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ -
Repayment of Investment per acre:	
By Irrigators	$ -
By Power Revenues	-
By M & I Water Users	-

Payment Capacity per Acre	$ -
Annual Charges:	
O. & M.	$ -
Construction	-
Total	$ -

STATUS OF REPAYMENT CONTRACT: All construction costs for Prosser Creek development are nonreimbursable; therefore, no repayment contract is required. 1/

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Stampede Dam and Reservoir	126,000 A.F.	0	6-68	Prosser Creek Dam & Res.	30,000 A.F.	8	6-63
Calvada Power Unit	26,500 K.W.	0	10-68	Truckee Meadows Drains	4,980 Ac.	0	6-65
Washoe Fish Hatchery	--	0	6-68	Permanent Operating Facilities		0	6-67
Watasheamu Dam & Reservoir	115,000 A.F.	0	6-65	Temporary Camps		23	7-64
Carson Valley Irrigation and Drainage System	--	0	6-68				
Watasheamu Power Unit	8,000 K.W.	0	6-66				

Acreage Full Supply 8,790 Supplemental Supply 43,680 Total Acres 52,470 Power kw 34,500

Region	Date	Project and State
2	1-18-60	Washoe Project, Nevada-California

Footnotes appear on the following page.

BR-144

1/ Allocation to be advanced by the United States.
2/ Changes in allocations

Flood Control
Fish and Wildlife
Recreation

NOTE.—The change in and Reservoir in estimated

Interest
Benefit-cost
Benefit-cost
Benefit-cost
Benefit-cost

Agriculture
Hays, grain

The chan

Description. The Truckee River Operating Agreement will furnish supplemental water supply for irrigation of 8,790 acres of presently irrigated land and for irrigation of 34,500 acres of new land in the Truckee Meadows area and recreation and fish and wildlife enhancement in the Truckee River and Pyramid Lake. Prosser Creek Dam and Reservoir will provide 30,000 acre-feet of storage for regulation of Prosser Creek flows for irrigation, power, and recreation. Stampede Dam and Reservoir will provide 126,000 acre-feet of storage for regulation of Little Truckee River flows for irrigation, power, and recreation. Watasheamu Dam and Reservoir will provide 115,000 acre-feet of storage for regulation of Truckee River flows for irrigation, power, and recreation. Power plants will be constructed at Stampede Dam and Watasheamu Dam. Truckee Meadows Drains will consist of 4,980 acres of open drains and 4,980 acres of tile drains. Carson Valley Irrigation and Drainage System will consist of 43,680 acres of open drains and 43,680 acres of tile drains. Permanent operating facilities will consist of a fish hatchery, a fish ladder at Derby Dam, and a fish ladder at Watasheamu Dam. Temporary camps will consist of construction camps for Prosser Creek Dam and Reservoir, Stampede Dam and Reservoir, and Watasheamu Dam and Reservoir.

Service to Indians. Service to Indians will be provided by the temporary camps, permanent operating facilities, and other features of the project at a total cost of $27,000,000.

Consolidation of Irrigation Districts. Consolidation of irrigation districts will be required and other measures will be taken to offset by increased revenues the increased costs financed by the United States.

Work progress. Prosser Creek Dam and Reservoir contract awarded in October 1959 and construction is California-Nevada Irrigation District.

Appropriations. Appropriations to date total $1,478,750. Creek Dam and Reservoir, Stampede Dam and Reservoir, and reconstruction of Derby Dam.

Schedule. Prosser Creek Dam and Reservoir contract awarded in October 1959 and construction is California-Nevada Irrigation District.

1960 construction of Prosser Creek Dam and Reservoir, Stampede Dam and Reservoir, and reconstruction of Derby Dam.

Although the project, the increase spillway spillway recreation and revi pletion o

Construct Stampe Calvad Washo Watash Carson syste

[1] Allocations and repayment cover Prosser Creek Dam and Reservoir only. Studies are not far enough advanced to furnish similar detail on the remainder of the project.
[2] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Flood control	$3,050,000	$4,493,000
Fish and wildlife	1,300,000	1,407,000
Recreation	.....	58,000
Total to be allocated	4,350,000	5,958,000

The change in total to be allocated is due to an increase in estimated obligations for Prosser Creek Dam and Reservoir. Changes in flood control and fish and wildlife reflect a proportionate share of the increase in estimate. Recreation represents an assignment of the cost of minimum basic facilities.

NOTE.—Benefit-cost ratio shown on Project Data Sheet for overall Washoe project is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only for overall Washoe project and 2½ percent interest is 1.40.
Benefit-cost ratio based on total benefits for overall Washoe project and 3 percent interest is 1.41.
Benefit-cost ratio shown on Project Data Sheet for Prosser Creek only is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits for Prosser Creek only and 2½ percent interest is 1.50.
Benefit-cost ratio based on total benefits for Prosser Creek only and 3 percent interest is 1.27.

Agricultural production, present and future

Hay, grain and pasture, dairy and beef cattle and general livestock.

JUSTIFICATION

Description.—This multipurpose project, located in the vicinity of Reno, Nev., will furnish supplemental water supply to 43,680 acres, and a full water supply to 8,790 acres. In addition, the project will have a power-generating capacity of 34,500 kilowatts and will provide benefits to flood control, fish and wildlife, and recreation. The construction program for fiscal year 1961 includes Prosser Creek Dam and Reservoir only.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Prosser Creek Dam and Reservoir, $3,090,000.—This amount will provide for contractors earnings on the construction contract, for payments to the State of California for highway No. 89 relocation, and for earnings on associated minor construction and supply contracts.

Service facilities, depreciation, and salvage, $29,000.—For the construction of a temporary laboratory and warehouse and the purchase of automative, laboratory, and other work equipment all totaling $56,000, offset in part by the distribution of $27,000 of prior costs of service and camp facilities to the permanent properties.

Consolidated expenditures and credits, $18,000.—This represents engineering and other costs to be distributed to project features in subsequent years partially offset by nonappropriation property transfers and charges from Solicitors' Office financed from appropriation to that office.

Change in total obligations

	Obligations
1960 congressional justification	$50,547,000
1961 congressional justification	50,547,000

Although no change has been made in the total estimated obligations for the project, the estimate for Prosser Creek Dam has increased by $1,608,000, due to increase in outlet cpacity to provide better flood-control operation, increase in spillway design flood resulting in increased height of dam, relocation of the spillway to secure better foundation conditions, and addition to minimum basic recreation facilities. Obligations estimated for the total project will be reviewed and revised as necessary when detailed information is made available by completion of the definite plan report.

Schedule of construction program, fiscal years 1960 and 1961, Washoe project, Nevada-California

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Stampede Dam and Reservoir	$7,355,000	.....	.....	.....	$7,355,000
Calvada power unit	18,146,000	.....	.....	.....	18,146,000
Washoe Fish Hatchery	500,000	.....	.....	.....	500,000
Watasheamu Dam and Reservoir	10,775,000	.....	.....	.....	10,775,000
Carson Valley irrigation and drainage system	6,162,000	.....	.....	.....	6,162,000

Footnotes appear on the following page.

Region 4 | Date 1-18-60 | Washoe Project, Nevada-California | BR-144

Schedule of construction program, fiscal years 1960 and 1961, Washoe project, Nevada-California—Continued

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program—Continued					
Watasheamu power unit	$2,562,000				$2,562,000
Prosser Creek Dam and Reservoir	5,958,000	$336,983	$1,016,750	$3,090,000	1,514,267
Truckee Meadow drains	717,000				717,000
Permanent operating facilities	917,265				917,265
Temporary camps	173,572	24,784	50,125		98,663
Service facilities, depreciation, and salvage	−1,040,837	27,767	53,213	29,000	−1,150,817
Other	20,000				20,000
Consolidated expenditures and credits	−1,698,000	50,041	−80,913	18,000	−1,685,128
Total expenditures	50,547,000	439,575	1,039,175	3,137,000	45,931,250
Undelivered orders		19,595	−19,595		
Total obligations	50,547,000	459,170	1,019,580	3,137,000	45,931,250
Method of financing:					
Appropriation, fiscal year 1960			678,750		
Application of prior-year funds			340,830		
Appropriations required				3,137,000	45,931,250

Mr. RABAUT. This project is part of the Truckee River flood-control plan, which is a complicated matter with respect to its authorization. Using a map, please explain what you are doing and what the Corps of Engineers is doing, and why.

Mr. BENNETT. The Prosser Creek Dam on this point of the tributary of the Truckee is right here [indicating]. The Truckee River flows through the city of Reno, and then all around in this direction. It is a closed basin, streams flowing into the general area in its center.

The program which the Corps of Engineers has been doing involves a stretch just above Reno of channel improvement work, and some work farther on up in this vicinity of Prosser Creek.

The original authorization for the corps' work required that it not be undertaken until the total Washoe project had been authorized. That project was authorized some 4 or 5 years ago. That freed the corps to get started on their channel improvement work.

The Prosser Creek Dam, which is the only part of the Washoe project under construction, does provide, in connection with the channel improvement work, the flood control values along the river and through the irrigated area around here and to the city of Reno. That is the only related work with Prosser Creek.

The corps is doing other work throughout the basin which is also being coordinated with the total Washoe project.

Just recently the Nevada State Legislature enacted a law providing for the State to purchase the right-of-way for the channel improvement work now under way by the corps. The State will buy that right-of-way for the corps' work.

The legislation also provides that the State will pay for the utility changes necessary and to maintain and operate the channel and to release the Federal Government from any damages that might occur. That is the State's participation in the corps' work.

The particular work which we are doing under the Prosser Creek Dam provides for the flood control aspects of this project and for the exchange of water for fish and wildlife purposes.

By having the water stored in the Prosser Creek Dam, the water now in Lake Tahoe can be better used for irrigation. The section of the stream between Lake Tahoe and where Prosser Creek water comes in can in certain times of the year be made to have a minimum flow and the water which would otherwise be in the stream would come from Prosser Creek.

The entire cost of the Prosser Creek Dam is authorized to the nonreimbursable functions of flood control, fish and wildlife, and recreation.

Mr. RABAUT. This was supposedly purely a flood control element of the total Washoe multipurpose project.

Mr. DOMINY. That is right. Prosser Creek Dam is all allocated to flood control.

Mr. RABAUT. With this completely independent of the reclamation project why do you confuse the thing by showing it is part of the multipurpose project?

Mr. DOMINY. It was one of the features of the multiple-purpose Washoe project as authorized.

Mr. RABAUT. Is the benefit to cost ratio 1.7 to 1?

Mr. BENNETT. For the total Washoe project, yes.

Mr. RABAUT. What is the 1.5 to 1?

Mr. BENNETT. Prosser Creek alone.

Mr. RABAUT. You have a substantial increase of $1,608,000 in the total cost, but you are still showing a high benefit-to-cost ratio.

FLOOD CONTROL BENEFITS

Give us a breakdown on the flood control benefit in terms of flood damages which have occurred in the past and why this storage facility is needed in addition to the downstream levees already constructed, and to be constructed by the Corps of Engineers.

Mr. BENNETT. You want those figures in the record?

Mr. RABAUT. Supply them.

(The information requested follows:)

FLOOD CONTROL REQUIREMENTS, WASHOE PROJECT

Flood damages along the Truckee River below the mouth of Prosser Creek have been studied by the Corps of Engineers, Department of the Army. It has been determined that under pre-Washoe project conditions of flood protection, based on July 1959 prices adjusted to reflect anticipated future growth, average annual flood damages would have amounted to $867,900. These damages are distributed in basin as follows:

Reno and vicinity	$571,000
Prosser Creek to Reno	83,400
Reno to Vista	83,500
Vista to Derby Dam	48,000
Derby Dam to Pyramid Lake	82,000

These values are computed by averaging the damages from historical floods as actually inventoried in certain cases, and as estimated by the standard damage frequency method of analysis in other cases. Damages resulting from historical floods actually inventoried are as follows:

Rain flood of November 1950	$3,120,000
Rain flood of December 1955	2,000,000
Snowmelt flood of 1952	230,000

The above damages are on the basis of prices and economic development at the time of occurrence.

Construction of the authorized Stampede and Prosser Creek Reservoirs of the Washoe project and operation of the existing Boca Reservoir on the Little

Truckee River for flood control will reduce flood damages below the mouth of Prosser Creek by an estimated $568,800 annually. This reduction will occur only through an integrated operation of all three reservoirs and the benefits are therefore appropriately assignable to reservoirs in the ratio of storage space used for flood control. Under this formula, $227,400 of the annual system benefit is creditable to Prosser Creek Reservoir.

It is emphasized that the above damage values are in addition to damages being prevented by the authorized local flood control protection project under construction by the Corps of Engineers. This project which consists of three reasonably distinct segments, (1) improvement of the outlet conditions of Lake Tahoe to permit more rapid evacuation of flood accumulations, (2) removing rock reefs and otherwise improving the channel through Truckee Meadows, and (3) minor clearing at other locations throughout intermittent reaches of the river will yield benefits estimated at $115,000 annually and will afford some protection in the vicinity of Reno but does not appreciably affect flooding within the city limits. Much of the justification for the Corps of Engineers' project derives from more rapid evacuation of Lake Tahoe, which is a damage area not capable of control by Washoe project reservoirs. From the above statement of pre-Washoe project damages it can be seen that the Corps of Engineers authorized channel project, although completely justifiable, does not achieve a very high percentage of flood damage reduction.

Mr. RABAUT. What are the real reasons why this dam was not included as part of the Corps of Engineers flood control project on the Truckee River?

AUTHORIZATION HISTORY

Mr. BENNETT. I think the answer is very general, Mr. Chairman. The two programs, the Corps of Engineers' channelization work and the Bureau's proposed Washoe project, came to the Congress at about the same time.

At that time Congress recognized that the channelization work by itself could not do the full flood control job. That was the reason they directed the corps not to go ahead pending authorization of the Washoe project, so the two programs were coordinated at that time and still are.

Mr. RABAUT. Why did not the corps get Prosser Creek? Why did it not get Prosser Creek Dam? This is really messed up.

Mr. DOMINY. As Mr. Bennett pointed out, Prosser Creek was in the total Washoe project plan which was authorized for the Bureau of Reclamation. Actually the dam that was in our proposal at the time was not Prosser Creek but it was another dam in a different location, but upon detailed investigation it was shifted to Prosser Creek as being a more desirable location and a special bill was put through the Congress recognizing some increased cost of Prosser Creek over the one which was in Washoe originally.

COST INCREASE

Mr. RABAUT. Normally it should have gone the other way.

Do not forget I asked about that substantial increase which you will explain for the record, $1,608,000.

Mr. DOMINY. I will be glad to give you that right now if you like.

Mr. RABAUT. Go ahead.

Mr. DOMINY. This increase is accounted for by the following items which resulted in the total increase:

An increased surcharge capacity in reservoir to provide for passage of design flood. In studying it in more detail we decided we had to have a little larger surcharge capacity, and by changing design of the dam this resulted in $316,000 increase.

After the corps finished their evaluation they recommended that we have a little bigger outlet capacity to evacuate the flood a little

more rapidly than we had originally thought necessary, and that increase accounts for $262,000 of this increased cost.

When we got into the detailed explorations for the location of the spillway—we had contemplated on putting it on the right abutment because we thought it was cheaper there—but we ran into some foundation problems and we ended up by having to put it on the more costly side, on the left abutment. This accounted for $305,000.

Mr. RABAUT. I can understand that.

Go ahead. Was it due to failure in making borings?

Mr. DOMINY. No, sir.

When we got more detailed estimates of the road relocation and utilities that was $197,000 more than we had originally anticipated.

Mr. RABAUT. Because of the shift?

Mr. DOMINY. And the rights-of-way costs, based now on detailed appraisals of the land rather than just general estimates, is costing $107,000 more than we originally thought.

Then there are $363,000 of the increase due to additional engineer costs above those which we had originally contemplated.

We are providing minimum basic recreational facilities at a cost of $58,000. This totals $1,608,000 increase.

Mr. BENNETT. We should add to that, Mr. Chairman, that we have recently opened the bids for construction of Prosser Creek Dam and they are very favorable. Those are not reflected in this proposal.

Mr. RABAUT. How much did it reduce it?

Mr. BENNETT. Well, the bids actually were about $1½ million below our engineers' estimates.

Mr. RABAUT. What will it reduce the 1961 request?

Mr. BENNETT. It reduces total estimated cost only and not the 1961 request.

Mr. RABAUT. How much did it reduce total estimated cost?

Mr. BENNETT. This is the first bid.

Mr. DOMINY. About $1½ million under the engineers' estimate.

Next year we hope to substantiate this and show you a decrease.

Mr. RABAUT. Mr. Jensen?

Mr. JENSEN. Will you explain how you can increase the cost of the Prosser Dam by $1,608,000 and still hold the same project cost overall? You may have answered that to some degree a moment ago.

Mr. RABAUT. Yes, he did.

Mr. JENSEN. When were those estimates made, referring now to the original estimates?

Mr. DOMINY. They were made in connection with the authorization of the project about 4 or 5 years ago, Mr. Jensen.

Mr. JENSEN. To what degree have you altered those estimates to date?

Mr. DOMINY. I don't know whether we have indexed those except on Prosser Creek Dam.

Do you know, Mr. Bennett?

Mr. BENNETT. I think we indexed them up at one time a couple of years ago on the total Washoe project.

Mr. DOMINY. I recall now—when we came in for amended legislation dealing with the Prosser Creek site in lieu of the one which was in the original bill, we got authorization from the Congress to increase the cost estimate from the original amount of $43,700,000 up to $52

million, based on April 1958 prices, so we did index it up based on April 1958 prices.

Mr. JENSEN. Then if costs continue to go up you will have to raise your estimates again, I presume?

Mr. DOMINY. If we build the remainder of the project certainly we will have to work with up-to-date cost estimates, and it is likely they will be increased if costs continue to rise generally.

Mr. JENSEN. What are the estimated residual flood control benefits from this dam, taking into account reduction in flood damage from the local protection work now being done by the Corps of Engineers?

Mr. DOMINY. The Prosser Creek flood benefits have been calculated in full cooperation with the corps and are related to the work which they are doing. The two are being worked out to supplement one another and they are not duplicating.

STAMPEDE DAM

Mr. JENSEN. On page 291 of the hearings of last year you refer to the Stampede Dam Reservoir, estimated total cost of $8,870,000. Now, you estimate it to be $7,355,000. What has happened there to bring down the estimate?

Mr. DOMINY. I recall the regional director explaining that more detailed studies on the ultimate plan would require a smaller dam at the Stampede site than originally was contemplated.

Mr. JENSEN. The same holds true of several other dams?

Mr. DOMINY. That is right.

FISH AND WILDLIFE BENEFITS

Mr. JENSEN. What are the fish and wildlife benefits which justify an allocation of $1,407,000? How were they evaluated?

Mr. DOMINY. This would go back to the original authorizing act, Mr. Jensen. I do not have the material here.

I will insert a statement based on the authorizing act.

(The information requested follows:)

FISH AND WILDLIFE BENEFITS, WASHOE PROJECT

The values attributed to sport fishing and hunting represent an approximation of the net value of these sports to the participants. The primary value of sport fishing and hunting consists of the satisfaction received by the individual participants in these sports and to a great extent is intangible in nature. Since fishing and hunting privileges and products are generally not sold, the usual market prices are not available for determining this value. Therefore, any value assigned to fishing and hunting must of necessity be an extra-market estimate.

Under the user-expenditure approach expenditures by fishermen and hunters for goods and services used in connection with these sports serve as a basis for assigning a monetary value to the satisfactions received by the participants. In effect, it is assumed that the public benefits from fishing and hunting represent an amount equal to the expenditures of the sportsmen.

Benefits calculated in accordance with the foregoing procedure amount to $44,700 annually. These benefits when employed in the separable costs-remaining benefits method of cost allocation result in an allocation of $1,407,000 to the fish and wildlife function.

MCMILLAN DELTA PROJECT, NEW MEXICO

Mr. RABAUT. McMillan Delta project, $100,000.

Insert pages 149 through 151.

(The pages referred to follow:)

PROJECT DATA SHEET

BUREAU OF RECLAMATION

LOCATION

Rio Grande and Gulf Basin. In the Pecos River Basin in Southeastern New Mexico, Eddy County.

(F.- 88)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Rio Grande and Gulf Basin. In the Pecos River Basin in Southeastern New Mexico, Eddy County.

AUTHORIZATION Act of February 20, 1958 (72 Stat. 17). | **B/C RATIO** 7.2 1/ | **Date** Sept. 1958

LAND CERTIFICATION ------ | **DEFINITE PLAN REPORT** Report on engineering plan of Channelization Division scheduled for submittal to Comm. April 1960.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 2,331,716	Appropriations to June 30, 19 59	$ 233,000
Net Property and Other Transfers	529,284	Appropriations for F. Y. 19 60	29,250
Cash Advances--Non-Federal		Appropriations to Date	262,250
Adjustment		Initial Underfinancing F. Y. 1960	99,250
		Appropriations Required for F. Y. 1961	100,000
Total to be Allocated	$ 2,861,000	Balance to Complete after F.Y. 1961	$ 1,870,216

ALLOCATIONS 4/

Irrigation	$ 2,600,000
Power	
M. & I. Water	
Flood & Nav.	
Salinity	
Alleviation	261,000
Total	$ 2,861,000

REPAYMENT

Amount Repaid by Irrigators	$
Amount Repaid by Power	
Amount Repaid by M. & I. Water	
Contributions in kind	380,000
Other 2/	2,220,000
Non - Reimbursable	261,000
Total	$ 2,861,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$	Payment Capacity per Acre 3/	$
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$	O. & M.	$
By Power Revenues		Construction	
By M.& I Water Users			
		Total	$

STATUS OF REPAYMENT CONTRACT: Repayment contracts for Channelization Division scheduled for execution prior to initiation of construction in F. Y. 1962.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion %	Completion Date
Malaga Bend Division:							
Salinity Alleviation Works		15	6-60				
Channelization Division:							
McMillan Delta Water Salvage Channel, 1,500 cfs.	16 Mi.	10	6-63				
Permanent Operating Facilities		--	3-63				

Acreage Full Supply _____ Supplemental Supply _____ Total Acres _____ Power kw _____

Region	Date	Project and State
5	1-18-60	McMILLAN DELTA PROJECT, NEW MEXICO

Footnotes appear on the following page.

BR-149

[1] 50-year benefit-cost ratio. Excludes salinity alleviation, as annual benefits for such measures were not evaluated.
[2] Such portion of this will be repaid as is within the water users' ability to repay as determined by the Secretary from time to time in accordance with the act of Feb. 20, 1958 (72 Stat. 17).
[3] Repayment arrangements not yet determined.
[4] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$2,600,000	$2,600,000
Salinity alleviation	150,000	261,000
Total to be allocated	2,750,000	2,861,000

Total to be allocated and costs allocated to salinity alleviation are both increased as a result of increase in estimated obligations to be incurred in the construction of the Malaga Bend division of the project. Detailed investigations have disclosed that a longer discharge line will be required for brine disposal than had been previously contemplated. The original disposal area was found to be unsuited without treatment to prevent return of the brine to the aquifer by percolation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.6.
Benefit-cost ratio based on total benefits and 3 percent interest is 6.33.

JUSTIFICATION

Description.—The project which is in southeastern New Mexico in Eddy County, provides for the salvage of an average of about 24,490 acre-feet of Pecos River water annually. The project also provides for salinity alleviation in the Malaga Bend area.

Appropriation title.—Construction and rehabilitation.

WORK PROPOSED, FISCAL YEAR 1961

Channelization division

McMillan Delta Water Salvage Channel, $100,375.—The program provides for the collection of design data, preparation of designs, and preparation and issuance of construction specifications.

Service facilities, depreciation, and salvage, —$375.—Represents cost of service facilities procured in the prior year which will be distributed to permanent property in the budget year.

Change in total obligations

	Obligations
1960 congressional justification	$2,217,173
1961 congressional justification	2,331,716
Increase	114,543

The increase is due to a change in plan of the salinity alleviation works in the Malaga Bend division to include a longer pipeline in order to reach a suitable brine disposal area.

Mr. RABAUT. Explain this project, please.

Mr. DOMINY. The McMillan Delta project has two phases. One is the control of saline water, and the other is the channelization above Lake McMillan.

The only part of the project we have been authorized by Congress through appropriations to undertake is the Malaga Bend division which is the salinity alleviation works.

Here we have a river which gets very salty at this one point by reason of salt springs flowing into it, and this creates a serious problem for irrigated lands lying below that point. So the plan was to take these salt springs and put thim into dry lake areas to evaporate the salt out and to keep the salt from going into the river.

We have run into some problems here. The area that we had proposed to use proved to be too porus and the salt water was going right on through and getting back into the river or on to other lands which would be harmed, so we had to abandon that.

We then undertook to change our plan to build a canal and take it over into a lake known as Laguna De La Sal, but this ran into very

serious local objections and was fairly costly, so we had to abandon that proposal.

We now believe we can solve it by drilling disposal wells and putting the salt water underground without harm. We are investigating that possibility.

Mr. RABAUT. You need a porous area to do that?

Mr. DOMINY. That is right. We think a 4,000-foot well from what we have learned of the area geology, by studying the logs on wells which have been put down in that general formation, that we may be able to solve it in that fashion at a price cheaper than the canal over into this Laguna De La Sal.

REPAYMENT CONTRACT

Mr. RABAUT. You are requesting funds for plans for a part of this project which is reimbursable, but you do not expect to complete a repayment contract until 1962?

Mr. DOMINY. That is right.

Mr. RABAUT. What assurances do you have that you will get one then? You have no straight assurances on that. You have no assurance this project will work, do you?

Mr. DOMINY. This is the channelization division above Lake McMillan. The reimbursable part has nothing to do with the salinity problem. That is nonreimbursable.

We know——

Mr. RABAUT. Can you get it in 1962?

Mr. DOMINY. We have no positive assurance that we can, Mr. Rabaut, but we believe that when we get the additional data which would be collected by the funds requested that this will convince the local people of their legitimate interest in assuming the repayment obligation because the work would benefit them.

Mr. RABAUT. How about the attitude on the part of your people to say you will not start construction until there is a firm idea on this?

Mr. BENNETT. The authorizing act itself requires that there must be a contract with these irrigation districts.

Mr. RABAUT. Before you start construction?

Mr. BENNETT. Before we start construction on any part of the channelization work. That particular contract by law commits the local people only to have the Secretary review their repayment capacity at 5-year intervals, and if at any one of those intervals he finds payment capacity, then they have to start to pay. Otherwise they do not, but they have to have a contract before we can start any construction on the channelization work.

Mr. RABAUT. According to the statement on page 150 it is solely up to the Secretary to decide whether or not there will be any repayments on this; is that right?

Mr. DOMINY. That is the authorizing act; yes, sir.

Mr. RABAUT. Why should we proceed at all on this project until we know if he is going to give all this money away or require some return on the investment?

Mr. BENNETT. As I say, by the law we cannot start construction of any of this channelization work until he has this kind of a contract.

At that time there would have to be a request for money to construct that work and there would be full review of the situation at that time.

Mr. DOMINY. Congress still would have control.

MIDDLE RIO GRANDE PROJECT, NEW MEXICO

Mr. RABAUT. Middle Rio Grande project, $1,729,000. Insert pages 153 to 161.

(The pages referred to follow:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Rio Grande and Gulf Basin, Middle Rio Grande Valley in north-central New Mexico, extending from the Colorado-New Mexico Boundary south to the backwaters of Elephant Butte Reservoir and including rectification of the Rio Grande in the vicinity of Truth or Consequences (formerly Hot Springs), New Mexico.

AUTHORIZATION Flood Control Act of 1948 (62 Stat. 1171, 1179) | B/C RATIO 2.39 | Date Dec. 1958

LAND CERTIFICATION by Secretary October 7, 1953 | DEFINITE PLAN REPORT "Initial Channelization" & General Plan & Drainage approved by Comm. 10-3-52 & 10-9-53, respectively.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 30,731,730	Appropriations to June 30, 1959	$ 26,661,186
Net Property and Other Transfers	738,270	Appropriations for F. Y. 1960	1,316,250
Cash Advances--Non-Federal	30,000	Appropriations to Date	27,977,436
Adjustment		Initial Underfinancing F. Y. 1960	178,750
		Appropriations Required for F. Y. 1961	1,729,000
Total to be Allocated	$ 31,500,000	Balance to Complete after F.Y. 1961	$ 846,544

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE 2/	
Irrigation	$ 15,740,000	Amount Repaid by Irrigators	$ 3,935,000	Irrig. Invest. per Acre	$ 225
Power		Amount Repaid by Power		Repayment of Investment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 56
Flood & Nav.	13,650,000	Class B Lands	11,805,000	By Power Revenues	
Other 1/	2,110,000			By M.& I Water Users	
		Non - Reimbursable	15,760,000	Class B Lands	169
Total	$ 31,500,000	Total	$ 31,500,000		

Payment Capacity per Acre	$ 12.27
Annual Charges:	
O. & M.	$ 3.04
Construction	1.40
Total	$ 4.44

STATUS OF REPAYMENT CONTRACT: Executed with Middle Rio Grande Conservancy District on September 24, 1951.

PRINCIPAL FEATURES

	Size or Cap.	Completion $1-1-60	Completion Date		Size or Cap.	Completion $	Completion Date
El Vado Dam	194,500 AF	99	6-61				
Diversion Works	4 each	96	3-60				
Deep Wells	5 each	100	6-57				
Canals	180 Mi.	91	2-60				
Laterals and Drains	986 Mi.	86	6-62				
Channelization	208 Mi.	80	6-62				
Permanent Operating Facilities		90	6-60				

Acreage Full Supply 121,680 3/ Supplemental Supply ____ Total Acres 121,680 3/ Power kw ____

Region	Date	Project and State
5	1-18-60	Middle Rio Grande Project, New Mexico

BR-153

[1] Indian land and basic water data allocation.
[2] For 69,930 acres of class A (irrigable) non-Indian lands only.
[3] Total water right land (81,611 certified as irrigable and 40,069 classed as 6W land). Of the irrigable total 69,930 are non-Indian and 11,681 are Indian.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.51.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.29.

Agricultural production, present and future

Present crops grown in the area consist principally of forage, cereal, vegetables (including home gardens), cotton, and fruits. No change is expected in the future.

JUSTIFICATION

Description.—This project is located in the middle Rio Grande Valley in north-central New Mexico. The purpose of this project is to provide rehabilitation of irrigation works, sediment control and flood control. Sedimentation and flooding will be controlled by construction of reservoir and levee improvements by the Corps of Engineers and channelization works by the Bureau of Reclamation. Flood control works completed are operated and maintained by the Bureau with appropriated funds. The irrigation facilities are operated and maintained by the Bureau with funds advanced by water users.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

El Vado Dam, $2,500.—The program provides for continuation of seepage studies to determine relationship between reservoir stage and seepage; collect water samples from reservoir and from seepage and analyze for suspended sediment and dissolved solids; and to observe any change that may affect stabilization of the dam.

Laterals and drains, $700,000.—Construction will be completed on three lateral units in the Belen area and two lateral units in the Albuquerque area. Construction will be started and completed on one lateral unit in the Albuquerque area. Collection of design data will be completed and construction started on one unit in Belen area.

Channelization, $1,815,800.—These funds are for channelization work on two units in the Belen area and on two units in the Albuquerque area. Preparation of designs and specifications will be performed for channelization in the Cochiti area and one unit in the Belen area. All of these units are part of the coordinated channelization and levee improvement program jointly developed with the Corps of Engineers. An amount of $781,300 is included in this program for work that will be performed by the Bureau of Reclamation and which will be financed by the corps. Of the total program $181,700 is for transfer to the corps for channelization on one of the units which is under their administration.

Service facilities, depreciation, and salvage, —$8,000.—Represents $8,500 cost of service facilities procured in prior years which will be distributed to permanent property in fiscal year 1961 which is partially offset by $500 for miscellaneous items of equipment to be purchased.

Coordinated channelization financed by Corps of Engineers, —$781,300.—Represents costs of Bureau-administered levee improvement contracts for the Corps of Engineers financed by the corps.

Changes in total obligations	*Obligations*
1960 congressional justification	$30, 761, 730
1961 congressional justification	30, 761, 730
No change	

Schedule of construction program, fiscal years 1960 and 1961, middle Rio Grande project, New Mexico

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
El Vado Dam	$638, 496	$622, 396	$13, 600	$2, 500	
Diversion works	870, 392	817, 692	52, 700		
Deep wells	128, 525	128, 525			
Canals	2, 192, 753	1, 967, 753	225, 000		
Laterals and drains	8, 405, 905	7, 154, 701	422, 008	700, 000	$129, 196
Channelization	14, 912, 486	10, 351, 540	1, 555, 446	1, 815, 800	1, 189, 700
Permanent operating facilities	313, 929	284, 929	29, 000		
Service facilities, depreciation and salvage		35, 218	−13, 000	−8, 000	−14, 218
Other project costs	5, 330, 514	5, 310, 514	20, 000		
Coordinated channelization financed by Corps of Engineers	−1, 293, 000		−32, 700	−781, 300	−479, 000
Consolidated credits and expenditures	−738, 270	−735, 940	−23, 196		20, 866
Total expenditures	30, 761, 730	25, 937, 328	2, 248, 858	1, 729, 000	846, 544
Undelivered orders		458, 263	−458, 263		
Total obligations	30, 761, 730	26, 395, 591	1, 790, 595	1, 729, 000	846, 544
Method of financing:					
Appropriation, fiscal year 1960			1, 316, 250		
Application of prior year funds			295, 595		
Initial underfinancing			178, 750		
Appropriations required				1, 729, 000	846, 544

Operation and maintenance

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960
Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued.			
Irrigation:			
Reservoir division: No change in the program from the prior year	$13,500	$13,500	----------
Cochiti division: No change in the program from the prior year	39,700	39,700	----------
Albuquerque division: Increase primarily to provide for cleaning of the drainage system	295,000	298,500	+$3,500
Belen division: The program provides for first full year of operation of the Peralta settling basin completed in fiscal year 1960. Prior-year program includes $18,000 for supplemental maintenance repairs on drains and levees to complement channel construction. Increase primarily due to net difference of these items	241,000	244,500	+3,500
Socorro division: No significant change in the program from the prior year	168,000	167,000	−1,000
Project headquarters: Prior-year program includes $6,000 for replacement of farm turnouts not included in fiscal year 1961 program	92,800	86,800	−6,000
Channel rectification:			
San Marcial-Socorro division: Increase is primarily for performing accumulative modification of conveyance channel and floodway improvements	206,126	233,400	+27,274
Belen division: The increase is primarily for the 1st year of operation of 8 miles of channelization to be completed June 1960 and 23 miles scheduled for completion in fiscal year 1961	19,000	54,400	+35,400
Albuquerque division: Increase is primarily for the 1st year of operation and maintenance of 7 miles of channelization completed in fiscal year 1960	8,000	13,600	+5,600
Espanola division: Additional maintenance needed for straightening river channel by removing sandbars and repairing existing plugs and groins accounts for most of the increase. These maintenance measures are needed to cope with the tributary flood problems encountered in this area	6,000	14,400	+8,400
Hot Springs division: No change in program from prior year	1,600	1,600	----------
Administrative and general expenses: The program provides for an increase in general expenses of the project office because of the larger program for channel operation and maintenance	28,000	30,000	+2,000
Additions: Program includes construction of water salvage channels under cooperative agreement with the State of New Mexico, in which the State is advancing $150,000; continuation of construction of groins and plugs at Espanola; and for continued installation of jetty fields and gravel blanket protection in existing channels to stabilize banks and prevent further erosion. Decrease is net difference between increase in gravel blanket protection and plugs and groins program and the decrease of $19,000 in work equipment included in the prior year program	218,600	214,600	−4,000
Replacements: For purchase of a D–8 tractor	13,000	38,000	+25,000
Total obligations	1,350,326	1,450,000	+99,674
Appropriation available and required	350,326	450,000	+99,674
Non-Federal advances	1,000,000	1,000,000	----------

Project statistics, middle Rio Grande project, New Mexico

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
FACILITIES OPERATED BY BUREAU				
Irrigation system:				
Irrigable acreage for service: Irrigation service land, full.[1]	Acres	[1] 121,680	[1] 121,680	[1] 121,680
Irrigated area	do [2]	54,356	55,000	57,000
Gross crop value	Dollars [2]	$3,871,399	$4,100,000	$4,200,000
Average gross crop value per acre	do [2]	71	73	74
Storage dams and reservoirs	Number	1	1	1
Diversion dams and headings	do	6	6	6
Canals	Miles	180	180	180
Laterals	do	587	587	587
Drains	do	399	399	399
Operating roads	do	1,000	1,000	1,000
Channel rectification:				
San Marcial-Socorro Division	do	87	87	87
Hot Springs	do	0.7	0.7	0.7
Belen Division	do	20	28	51
Albuquerque Division	do	7	14	38
Cochiti Division	do	0	0	[3] 0
Espanola Division	do	17	17	17
Operating roads	do	100	100	100

[1] Water-right land.
[2] Figures on calendar year basis.
[3] Construction proposed fiscal year 1962.

EL VADO DAM SEEPAGE

Mr. RABAUT. What is the problem on seepage at the El Vado Dam?

Mr. DOMINY. There has been a sizable loss of water from bank storage and seepage losses at El Vado.

Mr. RABAUT. Who built the dam?

Mr. DOMINY. The Rio Grande Conservation District.

Mr. RABAUT. The dam is not seeping but the terrain around it?

Mr. DOMINY. That is right. The problem comes about by this being a chronically water short area. Any losses are harmful to the success of the irrigated lands below.

Mr. RABAUT. Is it seeping to the extent it is causing a soggy condition?

Mr. DOMINY. We do not think there is a critical problem concerning the safety of the dam, but we would like to collect water samples from the reservoir and from the seepage and analyze for suspended sediment and dissolved solids and observe any change that might affect stabilization of the dam.

Mr. RABAUT. You are making a study of this, of course?

Mr. DOMINY. That is what we would do with this money.

Mr. RABAUT. What type of measure would you take on to correct a situation like this?

Mr. BENNETT. Earth blankets or anything that might prove to be the most economical.

Mr. RABAUT. You say the dam itself is holding?

Mr. DOMINY. We want to be certain that this seepage through the banks adjacent to the dam will not cause a condition which might affect stabilization of the structure.

Mr. RABAUT. Suppose you have to grout the whole rim of the reservoir?

Mr. DOMINY. We would not undertake anything of that nature. If we determined that one of the major veins of seepage was immediately adjacent to either abutment and as the water came through it was actually taking sediment out which might weaken the abutments then we would go in with a grouting or blanketing program to prevent that.

Mr. RABAUT. Suppose you find it is not there? What will you do with it?

Mr. BENNETT. We did do a little——

Mr. RABAUT. How expensive will it be?

Mr. BENNETT. We did a little grouting on this last year as a trial. We now want to make more tests to see whether that is doing any good. We want to do that, too. That is part of the continued study.

Mr. RABAUT. You are going at it cautiously?

Mr. BENNETT. Yes.

Mr. DOMINY. We did modify the dam and are operating it now as part of the middle Rio Grande works.

WASHITA BASIN, OKLA.

Mr. RABAUT. Washita Basin, $6,960,000.

Insert pages 162 through 166.

(The pages referred to follow:)

PF-65 (7-58) BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Arkansas - White - Red Basin, Washita River Subbasin in Western Oklahoma from the vicinity of Clinton, Custer, County to the vicinity of Anadarko in Caddo County.

AUTHORIZATION Act of February 25, 1956 (70 Stat. 28) | B/C RATIO 1.8 | Date 12/15/59

LAND CERTIFICATION Scheduled for September 1961 and December 1961. | DEFINITE PLAN REPORT approved 10/59 and 6/58. Vols. I & II provisionally III & IV scheduled for submittal 9/61 and 12/61. Vols.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 38,756,500	Appropriations to June 30, 1959	$ 11,962,370
Net Property and Other Transfers	350,000	Appropriations for F. Y. 1960	8,289,334
Cash Advances--Non-Federal		Appropriations to Date	21,251,674
Adjustment	1/ 375,000	Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 1961	6,960,000
Total to be Allocated	$ 39,491,500	Balance to Complete after F.Y. 1961	$ 10,514,826

ALLOCATIONS 6/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 10,169,700	Amount Repaid by Irrigators 2/	$ 7,290,000	Irrig. Invest. per Acre	$ 669	Payment Capacity per Acre	$ 5/
Air Force	291,400	Amount Repaid by Power		Repayment of Investment per acre:		Annual Charges:	
M. & I. Water	12,892,400	Amount Repaid by M. & I. Water 3/	15,105,100	By Irrigators	$ 456	O. & M.	$ 5/
Flood & Nav.	15,417,000			By Power Revenues		Construction	5/
Fish & Wildlife	839,000			By M & I Water Users	213		
Recreation	518,000	Non - Reimbursable 4/	17,096,400			Total	$ 5/
Total	$ 39,491,500	Total	$ 39,491,500				

STATUS OF REPAYMENT CONTRACT. Contracts executed with Fort Cobb Reservoir Master Conservancy District and Foss Reservoir Master Conservancy District covering repayments of amounts shown above, executed July 23, 1957 and February 14, 1958, respectively.

PRINCIPAL FEATURES

Fort Cobb Division	Size or Cap.	Completion % 1-1-60	Completion Date	Foss Division	Size or Cap.	Completion % 1-1-60	Completion Date
Fort Cobb Dam & Reservoir	142,500 AF	90	6-60	Foss Dam & Reservoir	430,070 AF	44	6-62
Fort Cobb Div. Irrig. Fac.	6,000 Ac.	3	12-62	Foss Div. Irrig. Fac.	10,000 Ac.	2	4-64
Fort Cobb Div. M&I Water Fac.	20.7 MI.	33	9-60	Foss Div. M&I Water Fac.	67.2	1	4-62
Fort Cobb Perm. Oper. Fac.		9	12-62	Foss Perm. Oper. Fac.	0	0	6-64
Recr., Fish & Wildlife Fac.		21	9-60	Recr., Fish & Wildlife Fac.	0	0	6-64

Acreage Full Supply 16,000 | Supplemental Supply — | Total Acres 16,000 | Power kw —

Region	Date	Project and State
5	1-18-60	Washita Basin, Oklahoma

BR-162

Footnotes appear on following page.

[1] Interest during construction on municipal and industrial investment.
[2] 55-year repayment period.
[3] 50-year repayment period.
[4] Includes $291,400 nonreimbursable allocation of Foss Dam and Reservoir costs to Air Force for water reserved for Clinton-Sherman Air Force Base.
[5] Repayment studies for irrigation not yet final.
[6] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$10,994,500	$10,169,700
Air Force	389,500	291,400
Municipal and industrial water	12,547,500	12,225,400
Flood control	15,417,000	15,417,000
Fish and wildlife	839,000	839,000
Recreation	549,000	549,000
Total to be allocated	40,736,500	39,491,500

The change in irrigation, municipal and industrial water, and Air Force are a result of reduced total project obligations and in a change in water use from irrigation to municipal and industrial as a consequence of additional communities participating in the Foss division of the project. Allocations to flood control and fish and wildlife are determined by capitalizing benefits and the allocation to recreation is for specific costs of recreational facilities, and thus the allocations to these purposes do not fluctuate with changes in the total obligations.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.55.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.44.

Agricultural production, present and future

Crops presently grown are cotton, wheat, forage sorghum, and sudan pasture. Future crops will consist of less wheat and small grain and more alfalfa, corn, and grain sorghum.

JUSTIFICATION

Description.—The project is located in western Oklahoma. Its purpose is to utilize the waters of Cobb Creek and the Washita River for municipal and industrial purposes, for irrigation, and to furnish water to the Clinton-Sherman Air Force Base. The dams will also provide substantial flood-control benefits. The reservoir areas will be developed for recreational use and for fish and wildlife propagation.

Appropriation title.—Construction and rehabilitation.

WORK PROPOSED, FISCAL YEAR 1961

Fort Cobb division

Irrigation facilities, $74,780.—The program provides for continuation of collection of field data.

Municipal and industrial water facilities, $103,201.—For completion of the construction of these facilities consisting mainly of the Anadarko aqueduct.

Recreation and fish and wildlife, $28,416.—For completion of the basic minimum recreational facilities, and development of the fish and wildlife area at the Fort Cobb Reservoir.

Foss division

Foss Dam and Reservoir, $3,020,829.—Provides for the continuation of dam construction and the land and land right acquisition and reservoir clearing program. Completion of relocation of existing properties in the reservoir area is scheduled. Construction of the dam is expected to be nearly complete by the end of the fiscal year.

Irrigation facilities, $69,719.—The program provides for continuation of collection of field data.

Municipal and industrial water facilities, $3,455,000.—For continuation of construction of these facilities consisting mainly of the Foss aqueduct.

Permanent operating facilities, $19,900.—Provides for the purchase of equipment for the maintenance of Foss Dam and Reservoir and the municipal and industrial water facilities.

Recreation and fish and wildlife, $216,500.—For virtual completion of construction of the basic minimum recreational facilities and development of the fish and wildlife area at the Foss Reservoir.

Service facilities, depreciation, and salvage, —$28,345.—Represents $38,345 cost of service facilities procured in prior years which will be distributed to permanent property in fiscal year 1961 partially offset by $10,000 for procurement of additional service facilities.

Change in total obligations

	Obligations
1960 congressional justification	$40, 051, 500
1961 congressional justification	38, 756, 500
Decrease	1, 295, 000

The decrease is due to revision of the estimate for Fort Cobb Dam to reflect actual quantity underrun of specifications quantities, a reduction in the cost of Fort Cobb Reservoir relocations, and contract prices on municipal and industrial water facilities for Fort Cobb division and on the contract for Foss Dam, the combination of which is a reduction of $2,580,500. These reductions are partially offset by an increase of $1,285,500 in the estimated cost of municipal and industrial water facilities for the Foss division necessitated by the addition of possible participating communities, and extension of aqueduct from Lake Hobart to city of Hobart, Okla.

Schedule of construction program, fiscal years 1960 and 1961, Washita Basin project, Oklahoma

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Fort Cobb division:					
Fort Cobb Dam and Reservoir	$6,805,000	$5,879,110	$925,890		
Irrigation facilities	2,370,000	80,537	69,400	$74,780	$2,145,283
Municipal and industrial water facilities	2,044,000	241,566	1,699,233	103,201	
Permanent operating facilities	235,763	24,763	46,000		165,000
Recreation and fish and wildlife	328,500	70,384	229,700	28,416	
Foss division:					
Foss Dam and Reservoir	15,882,000	4,699,739	6,864,366	3,020,829	1,297,066
Irrigation facilities	4,301,000	104,057	61,600	69,719	4,065,624
Municipal and industrial water facilities	6,410,500	66,613	458,000	3,455,000	2,430,887
Permanent operating facilities	204,884	25,928		19,900	159,056
Recreation and fish and wildlife	250,500		10,000	216,500	24,000
Service facilities, depreciation, and salvage	−15,647	73,329	3,365	−28,345	−63,996
Other project costs	300,000				300,000
Consolidated expenditures and credits	−360,000	−253,606	−128,300		21,906
Total expenditures	38,756,500	11,012,420	10,239,254	6,960,000	10,544,826
Undelivered orders		858,702	−858,702		
Total obligations	38,756,500	11,871,122	9,380,552	6,960,000	10,544,826
Method of financing:					
Appropriation, fiscal year 1960			9,289,304		
Application of prior year funds			91,248		
Appropriations required				6,960,000	10,544,826

RECREATION FACILITIES

Mr. RABAUT. What recreation facilities are to be built?

Mr. DOMINY. We would like to supply that information for the record.

(The information requested follows:)

RECREATION FACILITIES, WASHITA BASIN PROJECT

Facilities tentatively proposed and the estimates of cost as prepared by the National Park Service are as follows:

Item	Fort Cobb Reservoir	Foss Reservoir
Access and spur roads	$50,000	$42,000
Parking areas	12,000	10,000
Overlook shelters	8,000	8,000
Sanitation facilities	30,000	25,000
Water supply	24,000	20,000
Picnic areas	12,000	10,000
Boat launching	15,000	15,000
Fencing	8,000	7,000
Beaches	5,000	4,000
Planting and seeding	13,000	15,000
Road barriers	1,700	
Signs	2,000	
Contingencies	25,700	15,000
Engineering	50,000	41,300
Land	62,100	18,200
Total	318,500	230,500
	549,000	

FISH AND WILDLIFE BENEFITS

Mr. RABAUT. What benefits to fish and wildlife could possibly total $839,000?

Mr. DOMINY. Let us refer to the authorizing act.

(The information referred to follows:)

FISH AND WILDLIFE BENEFITS, WASHITA BASIN PROJECT

The sum of $839,000, shown on page BR–162 of the justifications, is the amount allocable to fish and wildlife on the Washita Basin project as distinguished from fish and wildlife benefits which are normally quoted on an average annual basis. This is the amount derived by application of the cost allocation formula specified in the act of February 25, 1956, which authorized the project. This formula provides that costs of specific works for fish and wildlife plus a share of joint costs equal to the present worth of net benefits at 2½ percent interest for 100 years are allocable to fish and wildlife. Net benefits to fish and wildlife as computed by the Fish and Wildlife Service and which form the basis for the cost allocation are $10,900 and $12,700, respectively, for Fort Cobb Reservoir and Foss Reservoir.

Mr. RABAUT. Give a breakdown of this allocation, too—what facilities make up the direct costs which are associated with these benefits?

(The information requested follows:)

FISH AND WILDLIFE DIRECT COSTS, WASHITA BASIN PROJECT

The direct costs allocable to fish and wildlife are $30,000 applicable to Fort Cobb Reservoir and Foss Reservoir in amounts of $10,000 and $20,000, respectively. These costs cover fencing and planting of feed supplies and habitat for mitigation of losses to upland game due to inundation of habitat by reservoir impoundment. These investments are supported by benefits that would otherwise be lost if replacement habitat were not provided.

MUNICIPAL AND INDUSTRIAL WATER

Mr. JENSEN. Is there an interest charge on the amount to be repaid for municipal and industrial water supply?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. If so, at what rate? Supply that for the record.

(The information requested follows:)

INTEREST RATE FOR M. & I. WATER, WASHITA BASIN PROJECT

The act of February 25, 1956, authorizing the Washita Basin project provides that payments on construction costs allocable to municipal and industrial water shall include interest on unamortized balances of such costs at a rate equal to the average rate (which rate shall be certified by the Secretary of the Treasury) paid by the United States on its marketable long-term loans outstanding on the date of the act. The rate so certified by the Secretary of the Treasury as being applicable to this provision is 2.591 percent.

Mr. JENSEN. How long a repayment period is allowed for municipal and industrial water?

(The information requested follows:)

REPAYMENT PERIOD FOR MUNICIPAL AND INDUSTRIAL WATER, WASHITA BASIN PROJECT

The repayment period for return of construction costs of the Washita Basin project allocable to municipal and industrial water extends for a period of 50 years after initial delivery of water through facilities of each unit. Thereafter, the annual repayment rates are required to be continued until the costs of the reservoirs allocable to irrigation is repaid and until such time as the costs of specific irrigation facilities are repaid.

CROOKED RIVER PROJECT, OREGON

Mr. RABAUT. Crooked River project, $2,235,000. Insert pages 167 through 172.

(The pages referred to follow:)

PF-65
(7-56)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION

Columbia Basin, Crook County, Central Oregon near the village of Prineville

AUTHORIZATION Act of August 6, 1956, and September 14, 1959 | B/C RATIO 3.7 | Date Nov. 1959

LAND CERTIFICATION by Secretary June 17, 1958 | DEFINITE PLAN REPORT September 1958

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 8,083,000	Appropriations to June 30, 1959	$ 2,463,000
Net Property and Other Transfers	384,000	Appropriations for F. Y. 1960	2,684,175
Cash Advances--Non-Federal		Appropriations to Date	5,147,175
Adjustment		Initial Underfinancing F. Y. 1960	.....
		Appropriations Required for F. Y. 1961	2,235,000
Total to be Allocated	$ 8,467,000	Balance to Complete after F.Y. 1961	$ 700,825

ALLOCATIONS [8]

Irrigation	$ 4,514,000 [3]
Deferred	2,084,000 [3]
M. & I. Water	
Flood & Nav.	1,363,000
F&WL	490,000
Recreation	16,000
Total	$ 8,467,000

REPAYMENT

Amount Repaid by Irrigators	$ 1,576,060 [1] [2]
Amount Repaid by Power	2,843,000 [1]
Amount Assigned but not Contracted for	94,940 [3]
Deferred	2,084,000 [3]
Non-Reimbursable	1,869,000
Total	$ 8,467,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 222
Repayment of Investment per acre:	
By Irrigators	$ 77 [4]
By Power Revenues	140
By Irrigation for space not presently contracted for	[5]
Payment Capacity per Acre	$ 6.02 [5]
Annual Charges:	
O. & M.	$ 3.24 [6]
Construction	1.54 [4]
Total	$ 4.78

STATUS OF REPAYMENT CONTRACT: Contract executed with Ochoco Irrigation District April 2, 1958 and individual contracts with owners of nondistrict land completed in July 1958, for cost of the portion of irrigation storage in Prineville Reservoir assigned to Crooked River lands.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Prineville Dam and Res.	155,000 AF	75	3-61				
Diversion Dam and Canal		9	7-61				
Ochoco and Barnes Butte Pumping Facilities		7	7-61				
Distribution Canal, Laterals and Drains		7	6-62				
Minimum Health and Safety Facilities [7]		24	6-61				

Acreage Full Supply 9,540 Supplemental Supply 10,870 Total Acres 20,410 Power kw none

Region	Date	Project and State
1	1-18-60	Crooked River Project, Oregon

Footnotes appear on the following page.

BR-167

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[1] Represents the amount presently contracted for by the irrigators, to be repaid over a 50-year period. District lands $1,311,400. Nondistrict lands $264,660.
[2] To be repaid by net surplus power revenues from the Dalles Dam project.
[3] Based on Prineville Reservoir space not contracted for by irrigators as of January 1960 plus cost of increased capacity of the diversion dam and canal, the Ochoco and Barnes Butte pumping facilities and the distribution canal required to serve 2,890 acres of lands adjacent to the project area which are proposed for future development.
[4] Excludes deferred irrigation costs and assigned space not presently contracted for.
[5] Weighted average (adjusted) for district and nondistrict lands.
[6] Total operating and power costs prorated equally to the project acreage.
[7] Previously titled "General Property."
[8] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$5,935,000	$4,514,000
Deferred irrigation		2,084,000
Flood control	1,363,000	1,363,000
Recreation	16,000	16,000
Fish and wildlife	490,000	490,000
Total to be allocated	7,804,000	8,467,000

Increase in total to be allocated results from an increase in irrigation facilities. Irrigation allocation in fiscal year 1960 included the allocation to deferred irrigation. The irrigation allocation for fiscal year 1961 is shown in two amounts. The first amount includes an increase of $183,000 associated with the authorized project, while the deferred irrigation includes the unassigned storage allocation plus $480,000 of costs specifically associated with Public Law 86-271 which authorizes excess capacity in the project works.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 2.02.
Benefit-cost ratio based on total benefits and 3 percent interest is 3.20.

Agricultural production present and future

Beef production and fattening of feeder cattle along with dairying are the principal agricultural enterprises and are expected to remain so in the future.

JUSTIFICATION

Description.—The project works are located near the town of Prineville in central Oregon. The project will provide a full water supply for 9,540 acres, and a supplemental supply to 10,870 acres. It will also make available 51,200 acre-feet of water for use as a supplemental or full supply on other lands in the Deschutes Basin. It will furnish flood protection; drainage works; recreational facilities and opportunities for increasing the present fishery resources.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Prineville Dam and Reservoir, $633,092.—For completion of Prineville Dam, reservoir clearing, and relocation of State Highway No. 27.

Diversion Dam and Canal, $797,813.—This amount is required for completion of the headworks and, with exception of final testing, the 8.2 mile-long diversion canal.

Ochoco and Barnes Butte pumping facilities, $615,011.—Program provides for completion of the pumping plants, with exception of final testing, and substation facilities.

Distribution on canal, laterals, and drains, $514,305.—The distribution canal and laterals will be completed except for final testing. Work will progress on the drain system with two contracts scheduled to be awarded during the fiscal year.

Minimum health and safety facilities, $10,164.—This amount is required for completion of these facilities at Prineville Reservoir area.

Service facilities, depreciation and salvage, −$22,784.—Represents the acquisition of new service facilities offset by service facilities procured in prior years charged to permanent features on a use basis in fiscal year 1961.

Consolidated expenditures and credits, −$12,601.—Represents service facilities acquired on a nonappropriation transfer basis, minor adjustments, and charges from Solicitor's Office financed from appropriation to that office, partially offset by salvage value of stores and equipment acquired in prior years.

Undelivered orders, −$300,000.—Represents the liquidation of prior years obligations against contracts for construction of the diversion headworks and canal, the pumping facilities, and the distribution canal.

Region 1 | Date 1-18-60 | Crooked River Project, Oregon | Project and State
BR-157
Footnotes appear on the following page.

Change in total obligations

	Obligations
1960 congressional justification	$7,420,000
1961 congressional justification	8,083,000
Increase	663,000

Of the total increase, $183,000 covers the cost of buried pipe for a portion of the diversion canal which traverses a populated area on the outskirts of Prineville. The balance of $480,000 represents the additional cost of constructing to a larger capacity the diversion dam and canal, the Ochoco and Barnes Butte pumping facilities and the distribution canal to serve an additional 2,890 acres of adjacent lands to be developed with water from unassigned space in Prineville Reservoir, authorized on September 14, 1959, under Public Law 271, 86th Congress, 1st session.

Schedule of construction program, fiscal years 1960 and 1961, Crooked River project, Oregon

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Prineville Dam and Reservoir	$5,196,000	$2,315,302	$2,241,606	$633,092	
Diversion dam and canal	1,172,300	83,292	211,795	797,813	$79,400
Ochoco and Barnes Butte pumping facilities	748,500	38,709	69,780	615,011	25,000
Distribution canal, laterals and drains	1,340,200	72,131	150,499	514,305	603,265
Minimum health and safety facilities	16,000	3,844	1,992	10,164	
Service facilities, depreciation and salvage		29,782	−6,498	−22,784	−500
Consolidated expenditures and credits	−384,000	−255,059	−110,000	−12,601	−6,340
Total expenditures	8,083,000	2,288,001	2,559,174	2,535,000	700,825
Undelivered orders		127,474	172,526	−300,000	
Total obligations	8,083,000	2,415,475	2,731,700	2,235,000	700,825
Method of financing:					
Appropriation, fiscal year 1960			2,684,175		
Application of prior-year funds			47,525		
Appropriations required				2,235,000	700,825

AUTHORIZATION

Mr. RABAUT. Please explain the new authorization of September 14, 1959, on this project.

Mr. DOMINY. That involves the authorization at the time of construction to provide capacity in the main canal works to serve what is known as the Crooked River extension area which has not yet been completely planned nor authorized. But we have gone far enough with our studies to be absolutely confident that there is good land available within the quantity of water that would be created by this storage project, and the Congress agreed it was good business because this extra capacity could be put in more cheaply in connection with the original construction than it ever could be put in again. So they gave us the authority to build to the ultimate capacity rather than limiting the main canal to the capacity for only the lands presently within the project.

Mr. RABAUT. We will take up the next one.

ROGUE RIVER PROJECT, OREGON

Mr. RABAUT. The Rogue River Basin project, $2,450,000.

Insert pages 173 through 180.

(The pages referred to follow:)

PROJECT DATA SHEET
PF - 63
(7-58)
BUREAU OF RECLAMATION
LOCATION

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION

North Pacific Basin, Jackson County, southwestern Oregon

AUTHORIZATION P.L. 606, 83rd Congress, 2nd Sess. approved 8-20-54 | B/C RATIO 1.64 | Date 11-23-59

LAND CERTIFICATION by Secretary October 27, 1955 | DEFINITE PLAN REPORT approved by Commissioner 11-1-55

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 22,992,000	Appropriations to June 30, 1959	$ 17,109,000
Net Property and Other Transfers	708,000	Appropriations for F. Y. 1960	2,367,093
Cash Advances--Non-Federal		Appropriations to Date	19,476,093
Adjustment	1/ 573,200	Initial Underfinancing F. Y. 1960	312,000
		Appropriations Required for F. Y. 1961	2,450,000
Total to be Allocated	$ 24,273,200	Balance to Complete after F.Y. 1961	$ 753,907

ALLOCATIONS 8/

Irrigation	$ 14,113,600
Power	9,336,500
M. & I. Water	
Flood & Nav.	579,100
Recreation	140,000
Fish & Wildlife	104,000
Total	$ 24,273,200

REPAYMENT

Amount Repaid by Irrigators	$ 7,075,500
Amount Repaid by Power	16,374,600
Amount Repaid by M. & I. Water	
Non - Reimbursable	823,100
Total	$ 24,273,200

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 789 2/	Payment Capacity per Acre	$ 12.78
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 381 3/	O. & M.	$ 6.02 4/
By Power Revenues	408	Construction	6.35 5/
By M. & I. Water Users		Total	$ 12.37

STATUS OF REPAYMENT CONTRACT: Talent Irrigation District contract ($5,810,000) for a 60-year repayment period was executed August 27, 1956. Sale of water, originally reserved for development of acres (2,680) under the Phoenix Lateral, now covered in repayment contracts executed 7-1-58 with Medford Irrigation Dist., and 7-16-58 with the Rogue River Valley I.D. under which $1,265,500 will be returned over a 60-year repayment period.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Howard Prairie Dam and Res.	62,000 AF	100	9-59	Drains, Channel Improvements	30 Mi.	4	Indef.
Emigrant Dam and Reservoir	40,000 AF	60	6-61	Green Springs Powerplant and Switchyard	16,000 Kw	99	9-59
Keene Creek Dam and Reservoir	370 AF	100	8-59	Minimum Health & Safety Fac	7/	22	3-61
Collection Canals 60-65 cfs	16 Mi.	85	12-60	Fish Facilities-Hyatt Pr. Dam	7/	10	11-60
Delivery Canals & Laterals	120 Mi.	80	6-62	Permanent Operating Facilities	7/		6-62
Sublaterals		10	6-62				

Acreage Full Supply 5,310 Supplemental Supply 23,801 Total Acres 6/ 29,111 Power kw 16,000

Region	Date	Project and State
1	1-18-60	Rogue River Basin Project, Talent Division, Oregon

Footnotes appear on the following page.

BR-173

[1] Includes $573,200 interest during construction.
[2] Irrigation allocation ($14,133,600) less pro rata share of costs associated with 9,000 acre-feet of water sold to Medford and Rogue River Valley Irrigation Districts ($2,010,000) divided by the new Talent district acreage (15,231 acres).
[3] Based on the contract obligation for the Talent Irrigation District ($5,810,000).
[4] Talent irrigation operating cost less pro rata share of costs associated with water sold to the Medford and Rogue River Irrigation Districts.
[5] Per acre charge over a 60-year repayment period.
[6] Revised acreage:

	Full	Supplemental	Total
Talent Irrigation District	5,310	9,921	15,231
Medford Irrigation District		9,000	9,000
Rogue River Valley Irrigation District		4,880	4,880
Total	5,310	23,801	29,111

[7] Previously titled "General property."
[8] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$14,107,000	$14,113,600
Power	9,375,000	9,336,500
Flood control	580,000	579,100
Recreation	140,000	140,000
Fish and wildlife	104,000	104,000
Total to be allocated	24,306,000	24,273,200

Total to be allocated is reduced by recomputation of interest during construction. Minor changes in flood control, irrigation and power result from internal adjustments within the cost estimate.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.17.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.44.

Agricultural production present and future

The crops of the project consist of cereals, and forage crops, vegetables, seeds, fruits, nuts, and family orchards and gardens. It is estimated that there will be very little deviation in the future from the present crop pattern.

JUSTIFICATION

Description.—This project, located in southwestern Oregon, will provide an adequate water supply for 29,111 acres of irrigable land, develop 16,000 kilowatts of power, reduce flood damages, and produce incidental benefits associated with recreation and fish and wildlife. Project facilities which will be completed and in operation in fiscal year 1961 will include all storage, delivery, and collection canals and power facilities and a major portion of the laterals and sublaterals. Construction of the drainage system has been deferred until definite needs are known. The Bureau will operate and maintain the power facilities and initially the storage and collection canal system with appropriated funds. Laterals and sublaterals will be operated by the irrigation district.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Emigrant Dam and Reservoir, $1,134,262.—This amount will provide for completion of the construction and enlargement of Emigrant Dam and an access road.

Collection canals, $40,000.—Required for completion of the Daley Creek collection canal.

Delivery canals and laterals, $1,105,805.—Work will be completed on the Ashland lateral, east lateral, and Talent laterals. Contracts for enlargement and extension of the existing west lateral will be awarded.

Sublaterals, $131,305.—This amount will provide for enlargement and extension of the existing sublateral system concurrent with work on the lateral system.

Drains, $1,000.—To cover minor costs associated with drainage studies.

Minimum health and safety facilities, $60,425.—Program includes completion of the minimum health and safety facilities at Howard Prairie Reservoir and provides for like facilities at Emigrant Reservoir.

Fish facilities, Hyatt Prairie Dam, $12,404.—For installation of fish screening facilities at Hyatt Prairie Dam.

Permanent operating facilities, $18,271.—Provides for acquiring the balance of the operating equipment consisting of a four-wheel drive pickup, and shop equipment, and miscellaneous tools plus minor construction items for the permanent operating facilities at Talent.

Service facilities, depreciation, and salvage, —$31,100.—For minor work at the Talent field headquarters and the purchase of automotive and work equipment totaling $18,000 which is more than offset by the distribution of $49,100 of prior costs of service and camp facilities to the permanent properties and to salvage.

Consolidated expenditures and credits, —$13,372.—Represents nonappropriation transfer of equipment and materials from other Bureau projects and charges from Solicitor's Office financed from appropriation to that Office.

Undelivered orders, —$9,000.—Represents liquidation of prior year's obligations.

Change in total obligations

	Obligations
1960 congressional justification	$22,992,000
1961 congressional justification	22,992,000
No change	----------

Schedule of construction program, fiscal years 1960 and 1961, Rogue River Basin project, Talent division, Oregon

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Howard Prairie Dam and Reservoir	$1,875,000	$1,862,306	$12,694	----------	----------
Emigrant Dam and Reservoir	4,944,000	1,952,854	1,856,884	$1,134,262	----------
Keene Creek Dam and Reservoir	935,000	663,355	271,645	----------	----------
Collection canals	1,876,000	1,287,010	548,990	40,000	----------
Delivery canals and laterals	6,959,000	4,854,873	771,322	1,105,805	$227,000
Sublaterals	487,000	44,487	50,000	131,305	261,208
Drains, channel improvements	300,000	12,663	3,337	1,000	283,000
Green Springs powerplant and switchyard	6,023,000	5,966,740	56,260	----------	----------
Minimum health and safety facilities	140,000	15,867	63,708	60,425	----------
Fish facilities, Hyatt Prairie Dam	15,000	596	2,000	12,404	----------
Permanent operating facilities	212,000	137,871	55,512	18,271	346
Service facilities, depreciation, and salvage	—66,000	56,056	—73,240	—31,100	—17,716
Consolidated expenditures and credits	—708,000	—654,697	—40,000	—13,372	69
Total expenditures	22,992,000	16,199,981	3,579,112	2,459,000	753,907
Undelivered orders	----------	909,019	—900,019	—9,000	----------
Total obligations	22,992,000	17,109,000	2,679,093	2,450,000	753,907
Method of financing:					
Appropriation, fiscal year 1960	----------	----------	2,367,093	----------	----------
Initial underfinancing	----------	----------	312,000	----------	----------
Appropriations required	----------	----------	----------	2,450,000	753,907

Operation and maintenance

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−), from fiscal year 1960
Work proposed, fiscal year 1961:			
Storage and canal facilities: For the first full year of operation and maintenance of the Howard Prairie Dam and Reservoir; Keene Creek Dam and Reservoir; the collection canal systems; the Howard Prairie delivery canal, and associated general expenses, and for the initial operation and maintenance of Emigrant Dam and Reservoir scheduled to be completed in the spring of 1961. Included also is a small amount for replacement and acquisition of miscellaneous shop tools and equipment	$22,904	$38,000	+$15,096
Power facilities: This amount will provide for the first full year of operating and maintaining the 16,000-kilowatt Green Springs powerplant, switchyard facilities, and related general expenses. It includes a small amount for replacement and acquisition of miscellaneous tools and minor equipment	37,000	48,000	+11,000
Total obligations	59,904	86,000	+26,096
Appropriation available and required	59,904	86,000	+26,096

Project statistics, Rogue River Basin project, Oregon, Talent division

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dam and reservoirs	Number		2	2
Canals	Mile		34.8	34.8
Power system:				
Annual sales	Kilowatt-hour		15,000,000	52,000,000
Revenue from sale of electrical energy	Dollar		97,000	360,000
Powerplants	Number		1	1
Plant capacity	Kilowatt		16,000	16,000
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service, land—full	Acre [1]			5,310
Irrigation service, land—supplemental	do	23,801	23,801	23,801
Irrigated area	do	20,840	25,000	26,000
Gross crop value	Dollars [1]	5,451,760	6,750,000	7,020,000
Average gross crop value per acre	do	262	270	270
Storage dams and reservoirs	Number	2	2	2
Diversion dams	do	9	9	9
Canals	Miles	163.8	163.8	198.6
Laterals	do	246	246	246
Drains	do			
Telephone	do	6.5	6.5	6.5
Operating roads (ditch bank)	do	70	76	116

[1] As of Dec. 31, 1959.

Mr. RABAUT. I have no questions.

BULLY CREEK EXTENSION, OREGON

Mr. RABAUT. Bully Creek extension, $173,000.
Insert pages 181 through 184.
(The pages referred to follow:)

PROJECT DATA SHEET

PF: 63
(7-58)
BUREAU OF RECLAMATION

LOCATION Eastern boundary of the State of Oregon, on Bully Creek, a tributary of the Malheur River, [illegible] miles northeast of the town of Vale, Oregon.

PF - 65
(7 - 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Eastern boundary of the State of Oregon, on Bully Creek, a tributary of the Malheur River, about nine miles northwest of the town of Vale, Oregon.

AUTHORIZATION Act of September 9, 1959 | B/C RATIO 3.06 4/ | Date Mar.19,1959

LAND CERTIFICATION March, 1961 (Est.) | DEFINITE PLAN REPORT To be submitted November 1960

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 3,210,000	Appropriations to June 30, 1959	$
Net Property and Other Transfers	116,000	Appropriations for F. Y. 19 60	
Cash Advances--Non-Federal		Appropriations to Date	.....
Adjustment		Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 1961	173,000
Total to be Allocated	$ 3,326,000	Balance to Complete after F.Y. 19 61	$ 3,037,000

ALLOCATIONS 1/

Irrigation	$ 1,700,000
Power	
M. & I. Water	
Flood & Nav.	1,497,000
Recreation	60,000
Fish & Wildlife	69,000
Total	$ 3,326,000

REPAYMENT

Amount Repaid by Irrigators 2/	$ 1,700,000
Amount Repaid by Power	
Amount Repaid by M. & I. Water	
Non - Reimbursable	1,626,000
Total	$ 3,326,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 50
Repayment of Investment per acre:	
By Irrigators	$ 50
By Power Revenues	
By M.& I Water Users	

Payment Capacity per Acre	$ 6.60
Annual Charges:	
O. & M.	$ 3.02
Construction 3/	2.92
Total	$ 5.94

STATUS OF REPAYMENT CONTRACT: Repayment contract scheduled for execution in March, 1961.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Bully Creek Dam & Reservoir	32,000 A.F.	0	6/64				
Laterals	13 Mi.	0	6/64				
Minimum Basic Health & Safety Facilities		0	12/63				
Permanent Operating Facilities		0	6/62				

Acreage Full Supply —— Supplemental Supply 4/ 34,145 Total Acres 34,145 Power kw - - -

Region	Date	Project and State
1	1-18-60	Vale Project, Bully Creek Extension, Oregon

Footnotes appear on the following page.

BR-181

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[1] Based on the latest cost allocation data included in the Secretary's report dated Mar. 25, 1959.
[2] Based on a 50-year period.
[3] Includes a charge of $1.92 per acre on the 1947 contract.
[4] Includes approximately 32,000 acres of presently irrigated land on Vale project.
[5] Planning funds only.
[6] Benefit-cost ratio shown on project data sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 2.60.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.68.

Agricultural production present and future

The type of crops will continue to be grains, row crops, forage, etc., with supplemental water from Bully Creek extension, but there will be a greater yield per acre as the result of an adequate water supply.

JUSTIFICATION

Description.—The primary purpose of the Bully Creek extension is to provide supplemental irrigation storage for the existing Vale project and additional flood protection in Malheur County, Oreg. The proposed facilities include Bully Creek Dam, an earthfill structure, creating a 32,000-acre-foot reservoir, a 2.5-mile feeder canal from the Vale main canal to the reservoir, and modification of the distribution system within the project area. The dam will be located about 9 miles northwest of Vale, Oreg., on Bully Creek, a tributary of the Malheur River. In addition to furnishing 34,145 acres of land with supplemental water for irrigation, the project will provide flood benefits and benefits incident to fish and wildlife, and recreation.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Bully Creek Dam and Reservoir, $166,000.—The program provides for preparation of the definite plan report, collection of field design data preparatory to issuance of specifications and the initial purchase of right-of-way for borrow areas and access roads.

Laterals, $5,000.—Represents a share of the costs of definite plan report, and repayment contract negotiations.

Minimum basic health and safety facilities, $2,000.—Represents a share of the costs of the definite plan report, and repayment contract negotiations.

Changes in total obligations

	Obligations
1960 congressional justification	[1]
1961 congressional justification	$3,210,000

[1] Not included in fiscal year 1960 congressional justifications.

Schedule of construction program, fiscal years 1960 and 1961, Vale project, Bully Creek extension, Oregon

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Bully Creek Dam and Reservoir	$3,138,000	$121,853	----------	$166,000	$2,850,147
Laterals	116,000	2,000	----------	5,000	109,000
Minimum basic health and safety facilities	60,000	----------	----------	2,000	58,000
Permanent operating facilities	17,500	----------	----------	----------	17,500
Service facilities, depreciation, and salvage	−5,500	----------	----------	----------	−5,500
Consolidated expenditures and credits	−116,000	−123,853	----------	----------	7,853
Total expenditures	3,210,000	----------	----------	173,000	3,037,000
Total obligations	3,210,000	----------	----------	173,000	3,037,000
Method of financing: appropriation required	----------	----------	----------	173,000	3,037,000

Mr. RABAUT. This is a new construction start. Please explain it.

Mr. DOMINY. The primary purpose of the Bully Creek extension is to provide supplemental irrigation storage for the existing Vale project and to provide flood protection in Malheur County, Oreg.

The proposed facilities include Bully Creek Dam, an earthfill structure, creating a 32,000 acre-foot reservoir, with a 2½-mile feeder canal from the Vale main canal, which is an existing feature of the Vale project, to the reservoir, and modification of the distribution system within the project area to make full use of the additional water supply which would be created by this dam.

The dam will be located about 9 miles northwest of Vale, Oreg., on Bully Creek, a tributary of the Malheur River.

In addition to furnishing 34,145 acres of land with supplemental water for irrigation, the project will provide flood benefits and benefits incident to fish and wildlife and recreation.

The Vale project has been in existence for a long while. It is a successful project but with a very restricted water supply, and they have needed this additional storage for a long while, and the water users have agreed to repay the full costs allocated to irrigation without any subsidy whatever.

Additionally this dam, had it been built about 3 years ago—there was a flash flood which came down which caused major damage to Vale and other communities in that area—the estimates were, that had this dam been in place the crest of that flood would have been held down to a point where little damage would have occurred, so it will be quite important as a local flood control venture.

STATUS OF DEFINITE PLAN REPORT

Mr. RABAUT. Since you do not have a definite plan report on this project as yet, your cost estimates are not firm, are they?

Mr. DOMINY. Well, in this case it is more or less of a technicality so far as a definite plan report is concerned.

Our feasibility report was practically as detailed as a definite plan because it is on just one structure.

The absence of so-called definite plan report here really is not significant.

Mr. RABAUT. Then this will be in the advance planning stage, to all intents and purposes, to 1961. Is that right?

Mr. DOMINY. If this is included in the budget, the program provides for preparation of a definite plan report, which, as I say, is a very minor element here, and for the collection of field design data preparatory to issuance of specifications, and the initial purchase of right-of-way for borrow areas and access roads.

RIGHT-OF-WAY ACQUISITION

Mr. RABAUT. But you are planning to proceed with some right-of-way acquisitions?

Mr. DOMINY. That is right.

Mr. RABAUT. Which would tend to commit Congress to construction?

Mr. DOMINY. That is right. This is actually a new start.

We would not actually award the construction contract with the funds here but we would do the work preliminary to awarding a construction contract.

Mr. RABAUT. How much is programed for this purpose for acquisition and rights-of-way?

Mr. DOMINY. We have only a small appropriation here. I can give you a statement as to how we expect to break that down as between field data collection and right-of-way.

(The information requested follows:)

VALE PROJECT, BULLY CREEK EXTENSIONS

Following is a breakdown of the fiscal year 1961 program for Bully Creek Dam and Reservoir:

Preparation of definite plan report	$50,000
Collection of design data	41,000
Preparation of designs and specifications	23,000
Purchase of right-of-way	52,000
Total	166,000

REPAYMENT CONTRACT

Mr. RABAUT. You plan to execute a repayment contract in March of 1961 at the earliest. What actually would be lost if this project is confined to the advance planning stage until fiscal 1962 so that we could see how much you are going to change your cost estimates and how good you are at negotiating the repayment contract?

Mr. DOMINY. I have every assurance that this contract will be negotiated to cover the full irrigation allocation.

Mr. RABAUT. All right.

Mr. DOMINY. They have indicated right along they want this project and are willing to pay for it.

Mr. JENSEN. All of it?

Mr. DOMINY. All of the irrigation part, yes, which is a major part of it.

We proposed to award this contract late in the fiscal year.

Mr. JENSEN. Will the entire 32,000 acre-feet of reservoir capacity be used to store water for irrigation?

Mr. BENNETT. Yes; it will be. This is an offstream reservoir in terms of its main supply of water; so it can be used——

Mr. JENSEN. Will it be?

Mr. BENNETT. It will be used part of the year for flood control and the remaining part of the year stored to its full capacity for irrigation water.

FLOOD CONTROL

Mr. JENSEN. What flood damages have occurred in the past and to what extent is this project expected to reduce such losses in the future?

(The information requested follows:)

VALE PROJECT, OREGON

PAST FLOOD DAMAGE AND FLOOD CONTROL BENEFITS ACCRUING FROM CONSTRUCTION OF BULLY CREEK EXTENSION

Studies by the Corps of Engineers establish that flood damages without any regulation on Bully Creek or the Malheur River would have averaged $286,000 annually. After construction of all authorized work this amount will be reduced to an average annual value of $65,000; thus resulting in a benefit of $219,000. Not all of this amount is creditable to the operation of Bully Creek Dam and

Reservoir. An amount of $44,000 annually is creditable to the operation of channel improvement by the Corps of Engineers in the vicinity of the city of Vale, Oreg. An additional amount of $53,000 is creditable to past incidental operation of the existing Warm Springs and Agency Valley Reservoirs. The construction and operation of Bully Creek Dam and Reservoir will result in a benefit of $122,000. The amount creditable to storage regulation in Bully Creek Reservoir is $59,500. The remaining $62,500 is creditable to the existing reservoirs as a result of being able to operate them for flood control on a forecast basis, in turn made possible by the increased operational flexibility achieved through the availability of irrigation storage in Bully Creek Reservoir.

Mr. JENSEN. How was the allocation of flood control determined?

(The information requested follows:)

VALE PROJECT, OREGON

DETERMINATION OF FLOOD-CONTROL ALLOCATIONS

The cost of this project has been tentatively allocated to purposes by the separable costs-remaining-benefits method of cost allocation in which project purposes share equitably in the savings from multiple-purpose development. Under this method, the amount allocated to a purpose cannot exceed the justifiable expenditure nor can it be less than the separable cost or the cost required to add the purpose to a project which otherwise excludes the purpose. The outer limits in the case of flood control in Bully Creek Dam and Reservoir are $3,066,000 and zero. The lower limit of zero indicates that no additional costs are incurred in constructing the reservoir for flood control although there is a slight increase in annual operating cost for flood forecasting. Since there are no separable construction costs for flood control the entire allocation of $1,497,000 derives from a distribution of joint costs among purposes through detailed application of the cost-allocation procedure.

NEW STARTS

Dr. FENTON. On the new starts no indication is given as to the estimated cost prior to fiscal year 1961. It is requested that in each such case the estimated cost at time of authorization be given.

(The information requested follows:)

Total estimated cost at time of authorization for new construction starts proposed in fiscal year 1961

	Cost	Date of authorization
Vale project, Oregon, Bully Creek extension	$3,326,000	Sept. 9, 1959
Lower Rio Grande rehabilitation project, Texas, La Feria division	6,000,000	Sept. 22, 1959
Missouri River Basin project, Almena unit, Kansas	6,202,100	Dec. 22, 1944
Yellowtail unit, Montana-Wyoming	42,324,000	Do.
Colorado River, storage project and participating projects, Curecanti unit, Colorado: Blue Mesa and Morrow Point Dams, Reservoirs, and powerplants	[1] 57,200,000	Apr. 11, 1956
Florida project, Colorado	[1] 6,963,500	Do.

[1] Includes expenditures from nonreimbursable Colorado River development fund for investigations.

Dr. FENTON. I believe that the benefit-cost ratios shown for Bureau projects are based on the inclusion of indirect benefits of dubious justifications. Will you please furnish on each project data sheet the benefit-cost ratio based on direct benefits only? Also on the projects on which the benefit-cost ratio is based on 2½ percent interest or less, show benefit-cost ratio based on a 3-percent interest rate.

Mr. DOMINY. Yes, sir. We will have that done.

Mr. RABAUT. The committee will adjourn until 10 o'clock tomorrow morning.

MARCH 3, 1960.

Mr. KIRWAN (presiding). The committee will come to order.

KLAMATH PROJECT, CALIFORNIA

Klamath project. Insert pages 185 to 190.
(Pages 185 to 190 of the justifications follow:)

PF - 65
(7 - 56)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION In Southern Oregon in Klamath County and in Modoc and Siskiyou Counties in North-Central California. Includes Upper Klamath River and Lost River Basins.

AUTHORIZATION By Secretary, May 15, 1905 | B/C RATIO Not Available Date

LAND CERTIFICATION None required | DEFINITE PLAN REPORT None—Construction initiated prior to DPR requirement

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 19,271,130	Appropriations to June 30, 1959	$ 15,245,987
Net Property and Other Transfers	283,591	Appropriations for F. Y. 1960	508,950
Cash Advances--Non-Federal		Appropriations to Date	15,754,937
Adjustment		Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 1961	868,000
Total to be Allocated	$ 19,554,721	Balance to Complete after F.Y. 1961	$ 2,668,193

ALLOCATIONS 2/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 19,459,978	Amount Repaid by Irrigators	$ 19,459,978	Irrig. Invest. per Acre $ 90.	Payment Capacity per Acre Not Available
Power		Amount Repaid by Power		Repayment of Investment per acre:	Annual Charges:
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators $ 90.	O. & M. $
Flood & Nav.				By Power Revenues	Construction
Other 1/	94,743	Non-Reimbursable	1/ 94,743	By M. & I. Water Users	Varies according to divisions $
Total	$ 19,554,721	Total	$ 19,554,721		

STATUS OF REPAYMENT CONTRACT: Contracts with eleven irrigation districts and several hundred individuals have been executed over the last 35 years within the basic principles of the Reclamation Law of 1902 and the Warren Act. There are no delinquents in repayments by either district or individuals and several contractors have completed payment of the total amount.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Completed Facilities	109,209 Ac.	100					
Lower Klamath Lake Division	25,798 Ac.	26	6-65				
Tule Lake Division	79,450 Ac.	77	6-64				

Acreage Full Supply 214,457 Supplemental Supply ____ Total Acres 214,457 Power kw ____

Region	Date	Project and State
2	1/18 60	Klamath project, Oregon-California

BR-185

1 Chargeoff by Congress: Act of May 25, 1926 (44 Stat. 639), and act of Aug. 2, 1951 (65 Stat. 152).
2 Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$18,527,461	$19,459,978
Other		94,743
Total to be allocated	18,527,461	19,554,721

The increase in total to be allocated results from the increase in total estimated cost of the projects irrigation facilities. Costs allocated as "Other" represent amounts charged off or declared nonreimbursable by the act of May 25, 1926, and the act of Aug. 2, 1951. These amounts have been previously shown as allocable to irrigation.

NOTE.—Data for benefit-cost computations not available inasmuch as construction of Klamath Project was commenced before benefit-cost ratio was adopted as indication of project justification.

Agricultural production present and future

Principal crops grown on the project are cereal grains, forage alsike clover seed, potatoes, and onions.

JUSTIFICATION

Description.—The project is located in the central area of the California-Oregon border. Water supply is made available from three reservoirs—Upper Klamath Lake, Clear Lake, and Gerber Reservoir, and is used to supply a full irrigation supply for 214,457 acres. Both gravity flow and pumping are used to

deliver water with return flows and water reuse characterizing the project. The Bureau operates the reservoirs and some of the canals with water users and appropriated funds while the other features are operated by either the Klamath Irrigation District or the Tule Lake Irrigation District.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Tule Lake Division, $873,030.—The program provides for the second group of pumping plants, and completion of the first two lateral and drain construction contracts in sump 2, and starting on the third. In sump 3 a pumping plant and one lateral and drain construction contract are to be completed, and design data prepared for two additional lateral and drain contracts and specifications issued on one of them. Collection of design data will be completed and designs and specification work started on the secondary drainage in sump area 2.

Service facilities, depreciation, —$5,030.—For the distribution of prior year costs of service facilities to the permanent properties.

Change in total obligations

	Obligations
1960 congressional justification	$18,140,738
1961 congressional justification	19,271,130
Increase	1,130,392

This increase is due primarily to the inclusion of secondary drainage in sumps 2 and 3 to complete the program of reclaiming lands within these areas.

Schedule of construction program, fiscal years 1960 and 1961, Klamath project, Oregon-California

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Completed facilities	$4,212,515	$4,212,515			
Lower Klamath Lake division	1,127,728	290,513			$837,215
Tule Lake division	13,690,589	10,398,484	$640,471	$873,030	1,778,604
Service facilities, depreciation and salvage		30,072	−4,000	−5,030	−21,042
Other project costs	523,889	470,473			53,416
Consolidated expenditures and credits	−283,591	−283,591			
Total expenditures	19,271,130	15,118,466	636,471	868,000	2,648,193
Undelivered orders		25,388	−25,388		
Total obligations	19,271,130	15,143,854	611,083	868,000	2,648,193
Method of financing:					
Appropriation, fiscal year 1960			508,950		
Application of prior year funds			102,133		
Appropriation required				868,000	2,648,193

Operation and maintenance

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960 fiscal year
Work proposed, fiscal year 1961: Normal operation and maintenance will continue:			
Main division	$9,295	$9,280	−$15
Tule Lake division: Increase due to requirements of 1st full year of operation and maintenance of pumping plant "D" offset by completion of nonrecurring modifications to this plant in prior year	89,025	93,290	+4,265
Lower Klamath Lake division: This increase is due to installation of additional water recorder stations	44,500	45,500	+1,000
Langell Valley division	4,480	4,430	−50
Project general activities: This increase is due exclusively to a major re-leasing program which will occur in fiscal year 1961	23,389	28,000	+4,611
Total obligations	170,689	180,500	+9,811
Appropriation available and required	39,405	38,400	−1,005
Non-Federal advances	131,284	142,100	+10,816

Project statistics

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
FACILITIES OPERATED BY BUREAU				
Irrigation system:				
Storage dams and reservoirs	Number	3	3	3
Diversion dams	do	1	1	1
Pumping plants	do	2	3	3
Drains	Mile	29	29	29
FACILITIES OPERATED BY WATER USERS				
Irrigation system:				
Irrigable area for service: Irrigation land, full.	Acre	214,457	214,457	214,457
Irrigated area (total)	do.[1]	195,946	196,000	196,000
Gross crop value	Dollar [1]	18,484,196	18,488,000	18,488,000
Average gross crop value per cultivated acre.	do.[1]	94.33	94.33	94.33
Diversion dams	Number	3	3	3
Pumping plants	do	26	27	28
Canals	Mile	120	120	120
Laterals	do	477	477	477
Drains	do	615	615	615

[1] Figures in calendar year basis.

WILDLIFE AND IRRIGATION INTERESTS

Mr. KIRWAN. What are the most recent developments in the battle between the wildlife interest and the irrigators on the project, and tell us what effect it has on the work you propose in 1961, if any?

Mr. DOMINY. The latest problem concerning some confusion between the wildlife activities of the project and irrigation occurred this last fall when some of the wildlife groups were critical of the Tule Lake Irrigation District in the manner in which they were holding the level of the Tule Lake sump.

As a result of that the Secretary of the Interior exercised his authority under the contract and gave notice that we would resume operation and maintenance of the pumping plant that controls the sump level.

However, before the date of actual resumption, we were able to have some meetings with the Tule Lake Irrigation District and we revised regulations pertaining to the levels of the sump at various periods of the year so as to coincide with the fish and wildlife requirements, and for access to the hunters. The district agreed to the revised regulations and everybody is happy and we did not take over the operation of the pumping plant. The operation remains with the Tule Lake people and as a result of that, we think we are now ready to go ahead with this work which we had delayed until these problems had been resolved.

LA FERIA DIVISION, TEXAS

Mr. KIRWAN. The lower Rio Grande rehabilitation project, La Feria Division, $500,000. Insert pages 191 through 195.

(Pp. 191 through 195 of the justifications follow:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Rio Grande and Gulf Basin--Lower Rio Grande Valley, Texas in Cameron County.

AUTHORIZATION Act of September 22, 1959 (73 Stat. 641) | B/C RATIO 3.9 [3] | Date Oct. 1959

LAND CERTIFICATION Scheduled July 1960 | DEFINITE PLAN REPORT Scheduled for submittal to Commissioner July 1960

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 5,737,990	Appropriations to June 30, 1959	$ -------
Net Property and Other Transfers	34,010	Appropriations for F. Y. 1960	-------
Cash Advances--Non-Federal		Appropriations to Date	-------
Adjustment		Initial Underfinancing F. Y. 1960	-------
		Appropriations Required for F. Y. 1961	500,000
Total to be Allocated	$ 5,772,000	Balance to Complete after F.Y. 1961	$ 5,237,990

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 5,772,000	Amount Repaid by Irrigators	$ 1/5,772,000	Irrig. Invest. per Acre	$ 216
Power		Amount Repaid by Power		Repayment of Investment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 216
Flood & Nav.				By Power Revenues	
		Non-Reimbursable		By M & I Water Users	
Total	$ 5,772,000	Total	$ 5,772,000		

Payment Capacity per Acre	$ 12.15
Annual Charges:	
O. & M.	$ 2/
Construction	6.16
Total	$ 6.16

STATUS OF REPAYMENT CONTRACT: Contract with La Feria Water Control and Improvement District, Cameron County No. 3 for $5,750,000 executed December 1959, and validation is anticipated early in calendar year 1960. $22,000 of the total to be repaid has been contributed by the District.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Storage Basin	2,000 A.F.	-	6-62				
Pumping Plants	50-285-375cfs	-	9-61				
Main canal and laterals	26,660 Ac.	-	6-65				
Drains	32,750 Ac.	-	6-65				
Permanent Operating Facilities	-	-	6-62				

Acreage Full Supply 26,660 | Supplemental Supply - | Total Acres 26,660 | Power kw -

Region	Date	Project and State
5	1-18-60	Lower Rio Grande Rehabilitation Project, La Feria Division, Texas

BR-191

[1] 35-year repayment period.
[2] The rehabilitation work will result in a saving in current O. & M. costs.
[3] Benefit-cost ratio shown on project data sheet is based on 2½-percent interest. Benefit-cost ratio based on direct benefits only and 2½-percent interest is 2.29. Benefit-cost ratio based on total benefits and 3 percent interest is 3.09.

Agricultural production present and future

Major crops presently being produced are citrus, cotton, grains, and vegetables. No significant change in type of crops produced anticipated following rehabilitation.

Appropriation title.—Construction and Rehabilitation.

Description.—This division of the project is in Cameron County in the lower Rio Grande Valley, Tex. Its purpose is to provide for the complete rehabilitation of the existing irrigation and drainage works of the La Feria Water Control and Improvement District, Cameron County No. 3. The plan of rehabilitation is designed to permit more economical operation and maintenance of the district

works, provide more efficient water deliveries, reduce distribution system losses, and reduce flooding of land in some areas. It contemplates delivery of water to the full 26,660 acres of irrigable land. No major changes in location are proposed for the canals, laterals, and drains.

The plan provides for a new and larger intradistrict water storage reservoir of 2,000 acre-feet capacity, repair or replacement of deteriorated existing canal lining, installation of concrete lining or pipes in most of the presently unlined laterals of the irrigation system, repair or replacement of deteriorated or inadequate irrigation and drainage structures, cleaning and clearing of all earthen canals and drains, and construction of maintenance access roads along all open canals, laterals, and drains.

Work proposed, fiscal year 1961

Storage basin, $20,000.—Provides for the initiation of collection of field data.

Pumping plants, $175,000.—For the initiation of rehabilitation work on the pumping plants.

Main canal and laterals, $250,000.—For the initiation of collection of field data on the main canal and for work on the laterals consisting of the initiation of construction on the first rehabilitation contract; the start of purchase of concrete pipe; and the collection of field data for the second rehabilitation contract.

Drains, $10,000.—Program provides for the initiation of collection of field data.

Permanent operating facilities, $32,000.—For the acquisition of a trencher and tractor with front-end loader and back hoe to be used by the district in maintenance activities.

Service facilities, depreciation, and salvage, $13,000.—Represents $15,000 for procurement of service facilities items which is partially offset by $2,000 to be distributed to permanent property during the year.

Changes in total obligations

	Obligations
1960 congressional justification	(1)
1961 congressional justification	$5,737,990

[1] Not included in fiscal year 1960 congressional justifications.

Schedule of construction program, fiscal years 1960 and 1961, lower Rio Grande project, La Feria division, Texas

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Storage basin	$500,000	$1,100	$500	$20,000	$478,400
Pumping plants	204,000	700	300	175,000	28,000
Main canal and laterals	4,182,000	22,310	10,700	250,000	3,898,990
Drains	786,000	2,400	1,000	10,000	772,600
Permanent operating facilities	100,000			32,000	68,000
Service facilities, depreciation and salvage				13,000	−13,000
Consolidated expenditures and credits	−34,010	−26,510	−12,500		5,000
Total expenditures	5,737,990			500,000	5,237,990
Total obligations	5,737,990			500,000	5,237,990
Method of financing: Appropriation required				500,000	5,237,990

Mr. KIRWAN. Please explain this new construction start.

Mr. DOMINY. This is one of the new starts that is in the budget this year. The project is in Cameron County in the lower Rio Grande Valley of Texas and the purpose is to provide for the complete rehabilitation of the existing irrigation and drainage works of the La Feria Water Control and Improvement District.

The plan of rehabilitation is designed to permit more economical operation and maintenance of the districts' irrigation works and to provide more efficient water deliveries, reduce distribution system

losses, and reduce flooding of the land in some areas. The project contemplates the delivery of water to the full 26,660 acres of irrigable land. There will be no major changes in location of the present canals, laterals, and drains but there will be modernization and improvements.

LA FERIA REPAYMENT CONTRACT

Mr. KIRWAN. Has the repayment contract on this project been validated as yet?

Mr. DOMINY. The contract with the La Feria Water Control and Improvement District for the $5,750,000 was executed in December 1959, and validation is anticipated early in calendar year 1960.

Mr. KIRWAN. Does the 160-acre limitation apply to this project? If not, how many landowners will benefit?

Mr. BENNETT. That contract was validated on the 1st day of February.

Mr. DOMINY. It has already been validated then.

160-ACRE LIMITATION

Mr. KIRWAN. Does the 160-acre limitation apply to this project?

Mr. BENNETT. I think we should check that.

Mr. DOMINY. This was special legislation. Let us check the details of that and put it in the record.

Mr. KIRWAN. What is the average income per acre for the land in this project?

Put this in the record if you haven't got it.

(The information referred to follows:)

APPLICABILITY OF EXCESS LAND LIMITATIONS TO LA FERIA DIVISION

The legislation authorizing the LaFeria division of the lower Rio Grande rehabilitation project, approved September 22, 1959, as Public Law 86-357 provides, in lieu of the excess land provisions of reclamation law, for the payment of interest by the owners of excess land similar to the requirement of section 5(c)(2) of the Small Reclamation Project Act of 1956 (70 Stat. 1044), as amended. The number of farmowners and size of holdings based on records of irrigation assessments in the La Feria district indicates that 1,857 owners hold 29,888 acres in units ranging in size from less than an acre up to 160 acres. An additional 11 owners holding a total of 2,282 acres in units ranging from 161 acres upward. The majority of these larger ownerships fall within the category of 161 to 320 acres with only one comprising a total of 361 acres being in excess thereof.

LA FERIA DIVISION, LOWER RIO GRANDE PROJECT, AVERAGE INCOME PER ACRE

According to our analysis of the project, as published in House Document 128, 86th Congress, 1st session, the average gross farm income is $208 per acre.

Mr. KIRWAN. Why should the Federal Government buy a trencher and tractor for the district, for uses of maintenance shown when maintenance is the irrigator's responsibility?

Mr. DOMINY. Part of the plan to rehabilitate this system will, of course, involve putting it into tiptop shape and to provide for the maintenance of it in tiptop shape.

Mr. KIRWAN. Any questions?

Mr. MAGNUSON. No questions.

MERCEDES DIVISION, TEXAS

Mr. KIRWAN. Lower Rio Grande rehabilitation project, Mercedes division, $2,500,000. Insert pages 196 through 200.

(The matter referred to follows:)

DF - 65
(7 - 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Rio Grande and Gulf Basin, Lower Rio Grande Valley, Texas in Hidalgo and Cameron Counties

AUTHORIZATION Act of April 7, 1958 (71 Stat. 372) | B/C RATIO 15.80 3/ Date July 1959

LAND CERTIFICATION By Secretary, April 28, 1959 | DEFINITE PLAN REPORT Approved by Commissioner August 26, 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 10,760,000	Appropriations to June 30, 1959	$ 459,000
Net Property and Other Transfers	40,000	Appropriations for F. Y. 1960	1,394,250
Cash Advances--Non-Federal		Appropriations to Date	1,844,250
Adjustment		Initial Underfinancing F. Y. 1960	66,250
		Appropriations Required for F. Y. 19 61	2,500,000
Total to be Allocated	$ 10,800,000	Balance to Complete after F.Y. 19 61	$ 6,341,500

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 10,800,000	Amount Repaid by Irrigators 1/	$ 10,800,000	Irrig. Invest. per Acre	$ 159
Power		Amount Repaid by Power		Repayment of Investment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 159
Flood & Nav.				By Power Revenues	
		Non - Reimbursable		By M & I Water Users	
Total	$ 10,800,000	Total	$ 10,800,000	Total	$ 159

Payment Capacity per Acre	$ 8.13
Annual Charges	
O. & M.	$ 2/
Construction	4.54
Total	$ 4.54

STATUS OF REPAYMENT CONTRACT: Contract with Hidalgo and Cameron Counties Water Control and Improvement District No. 9 for $10,800,000 executed on July 16, 1958, and validated Dec. 16, 1958.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Storage Basin and River Pumping Plant	4,500 A.F / 750 Cfs	35	10-63	Permanent Operating Facilities		9	12-63
Main Canal	13.5 mi.	1	9-63				
Laterals & Relift Pumping Plants	68,000 Ac.	4	12-63				
Drains	90,000 Ac.	1	12-63				

Acreage Full Supply 68,000 Supplemental Supply .... Total Acres 68,000 Power kw ...

Region	Date	Project and State
5	1-18-60	Lower Rio Grande Rehabilitation Project, Mercedes Division, Texas

BR-196

[1] 35-year repayment period.
[2] The rehabilitation work will result in a saving in current O. & M. costs.
[3] Change in benefit-cost ratio:

Fiscal year 1960 justification	6.53
Fiscal year 1961 justification	15.80

The benefit-cost ratio shown in the fiscal year 1960 justifications was based on the use of total benefits during a 100-year period of analysis. The data were as presented in the legislative history (H. Doc. 152, 85th Cong., 1st sess.) since the definite plan report had not been approved by the Commissioner of Reclamation. Revised benefit-cost studies prepared for the definite plan report, and reflected in the fiscal year 1961 justifications, make use of irrigation benefits on a price base of 250 for prices received and 265 for prices paid (1910–14 equal 100) whereas House Document 152 studies used a price base of 215.

Revised agricultural studies on the new price base and completion of detailed land classification resulted in a decrease in payment capacity.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 6.07.
Benefit-cost ratio based on total benefits and 3 percent interest is 13.75.

Agricultural production, present and future

The major crops presently being produced are citrus, cotton, grains, and vegetables. Little difficulty is experienced in this area in obtaining two or more crops each year on the general cropland. Future cropping patterns show an increase in the production of citrus, grains, and vegetables.

JUSTIFICATION

Description.—This division of the project is in the lower Rio Grande Valley, Tex. Its purpose is to provide a full water supply for the irrigation of 68,000 acres through complete rehabilitation of deteriorated facilities.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Storage basin and river pumping plant, $33,000.—For completion of the installation of three natural gas engines replacing three steam driven engines in the river pumping plant.

Laterals and relift pumping plants, $2,468,000.—The program provides for the award of four construction contracts, completion of two construction contracts, and continuation of two construction contracts and a concrete pipe contract, all in connection with rehabilitation of laterals. Rehabilitation of laterals consists of reconstruction of all earth laterals with concrete lining or pipelines, repair or replacement of structures, and providing maintenance roads along all new lined laterals. The program also provides for completion of necessary repair and replacement work in connection with relift pumping plant No. 5. Preconstruction work on laterals will be continued to insure an orderly sequence of construction so as to cause as little interference as possible with irrigation in this area where water deliveries are required practically the entire year.

Drains, $5,000.—For the continuation of collection of design data.

Service facilities, depreciation, and salvage, —$6,000.—Represents $8,000 cost of service facilities procured in prior years which will be distributed to permanent property in fiscal year 1961 partially offset by $2,000 for procurement of additional service facilities.

Change in total obligations

	Obligations
1960 congressional justification	$10,760,000
1961 congressional justification	10,760,000
No change	

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Storage basin and river pumping plant	$751,000	$42,583	$408,000	$33,000	$267,417
Main canal	216,000	1,804			214,196
Laterals and relift pumping plants	8,384,000	169,159	1,221,719	2,468,000	4,525,122
Drains	1,149,000	3,235	5,000	5,000	1,135,765
Permanent operating facilities	300,000		83,000		217,000
Service facilities, depreciation, and salvage		31,601	1,399	−6,000	−27,000
Consolidated expenditures and credits	−40,000	−26,098	−28,902		15,000
Total expenditures	10,760,000	222,284	1,690,216	2,500,000	6,347,500
Undelivered orders		222,999	−222,999		
Total obligations	10,760,000	445,283	1,467,217	2,500,000	6,347,500
Method of financing:					
Appropriation, fiscal year 1960			1,394,250		
Application of prior year fund			4,717		
Initial underfinancing			68,250		
Appropriations required				2,500,000	6,347,500

SAN ANGELO PROJECT, TEXAS

Mr. KIRWAN. No questions.

San Angelo project. Insert pages 201 through 205.

(The matter referred to follows:)

PF-43
7-7-58
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Rio Grande and Gulf Basin - West Texas in Tom Green County, in the vicinity of San Angelo, Texas

AUTHORIZATION: Act of August 16, 1957 (71 Stat. 372) | B/C RATIO 2.70 | Date May 1959

LAND CERTIFICATION March 1959 | DEFINITE PLAN REPORT Submitted February 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 32,266,300	Appropriations to June 30, 1959	$ 610,000
Net Property and Other Transfers	167,700	Appropriations for F. Y. 19 60	3,657,611
Cash Advances--Non-Federal		Appropriations to Date	4,267,611
Adjustment	1/ 309,000	Initial Underfinancing F. Y. 19 60	242,389
		Appropriations Required for F. Y. 19 61	11,000,000
Total to be Allocated	$ 32,743,000	Balance to Complete after F.Y. 1961	$ 16,756,300

ALLOCATIONS 3/

Irrigation	$ 10,504,000
Power	
M. & I. Water 1/	6,639,000
Flood & Nav 2/	11,503,000
Recreation	68,000
Fish & Wl.	4,029,000
Total	$1/32,743,000

REPAYMENT

Amount Repaid by Irrigators	$ 4,000,000
Amount Repaid by Power	
Amount Repaid by M. & I. Water	13,493,000
1/& 2/	
Non - Reimbursable	15,250,000
Total	$ 32,743,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 1,050	Payment Capacity per Acre	$ 16.77
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 400	O. & M.	$ 5.00
By Power Revenues		Construction	10.00
By M.& I.Water Users	650		
		Total	$ 15.00

STATUS OF REPAYMENT CONTRACT: Repayment contract with San Angelo Water Supply Corporation executed April 2d, 1959; repayment contract with Tom Green County Water Control and Improvement District No. 1 executed June 13, 1959.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Twin Buttes Dam and Reservoir	600,000AF	3	6-63				
Main Canal and Laterals		2	6-63				
Drainage System		5	6-63				
Permanent Operating Facilities		-	6-63				
Twin Buttes Recreational Development		-	6-63				

Acreage Full Supply 10,000 | Supplemental Supply | Total Acres 10,000 | Power kw

Region	Date	Project and State
5	1-18-60	San Angelo Project, Texas

BR-201

1 Includes $309,000 interest during construction.
2 Includes $350,000 to be paid by the San Angelo Water Supply Corp. for local flood control land enhancement benefits.
3 Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$11,058,000	$10,504,000
Municipal and industrial water	6,935,000	6,639,000
Flood control	10,803,000	11,503,000
Recreation	62,000	68,000
Fish and wildlife	3,584,000	4,029,000
Total to be allocated	32,440,000	32,743,000

All allocations are changed as the result of a complete new cost allocation study made in connection with advance planning investigations. Benefits to all purposes were changed by application of current agency criteria for project evaluation. Increase in reimbursable interest during construction results from an extended construction period and the recreation allocation increase of $8,000 represents a more detailed estimate of the required facilities.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.88.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.21.

Agricultural production present and future

Present crops are primarily cotton and grain crops. Future crops will be cotton, grain crops, alfalfa, and forage sorghum.

JUSTIFICATION

Description.—This multipurpose project is located in west Texas near the city of San Angelo. It will provide a full water supply for the irrigation of 10,000 acres, municipal and industrial water for the city of San Angelo, flood control, fish and wildlife, and recreational benefits.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Twin Buttes Dam and Reservoir, $10,596,000.—The program provides for the continuation of construction of the dam, including the procurement and installation of the high pressure gates and other equipment in the outlet works. The

acquisition of land and land rights and the relocation of existing property in the dam and reservoir area will be completed.

Main canal and laterals, $399,000.—For the acquisition of land and land rights and the initiation of construction for the main canal. Land and land rights will be acquired, the collection of design data will be completed, and the construction specifications will be almost completed for the laterals.

Drainage system, $1,000.—Collection of design data will be continued.

Service facilities, depreciation, and salvage, $4,000.—Represents $15,000 cost of service facilities procured in prior years which will be distributed to permanent property in fiscal year 1961 which is more than offset by $19,000 for procurement of additional service facilities consisting of automotive, work, and laboratory equipment.

Change in total obligations

	Obligations
1960 congressional justification	$32,031,020
1961 congressional justification	32,266,300
Increase	235,280

The change is due primarily to an increase in the estimated cost of the dam and reservoir in the amount of $116,000; the adjustment of estimates of construction contracts for main canal and laterals, $90,000; and minor increases of $29,280 to conform with more detailed studies.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Twin Buttes Dam and Reservoir	$29,946,000	$478,120	$4,123,414	$10,596,000	$14,748,466
Main canal and laterals	2,239,000	42,010	14,000	399,000	1,774,990
Drainage system	70,000	3,588	1,000	1,000	64,412
Permanent operating facilities	120,000				120,000
Twin Buttes recreational development	68,000				68,000
Service facilities, depreciation and salvage		20,568	49,500	4,000	−74,068
Consolidated expenditures and credits	−167,700	−174,095	−48,105		54,500
Total expenditures	32,266,300	370,191	4,139,809	11,000,000	16,756,300
Undelivered orders		783	−783		
Total obligations	32,266,300	370,974	4,139,026	11,000,000	16,756,300
Method of financing:					
Appropriation fiscal year 1960			3,657,611		
Application of prior-year funds			239,026		
Initial underfinancing			242,389		
Appropriations required				11,000,000	16,756,300

Mr. JENSEN. Why do you request $4,029,000 chargeoff to fish and wildlife? Explain in detail.

FISH AND WILDLIFE

Mr. DOMINY. The Fish and Wildlife Coordination Act of August 12, 1958, further emphasized the role of fish and wildlife as a project purpose over and above that set forth in the 1934 and 1946 acts as they relate to fish and wildlife. The 1958 act provided among other things that fish and wildlife should receive equal consideration, and be coordinated with other functions of water resource development programs. This act clearly sets forth the concept that the function of fish and wildlife is a joint partner with all other project purposes. The allocation to the fish and wildlife function in the San Angelo project is consistent with this basic legislation.

The construction of Twin Buttes Reservoir will double the fishing opportunities in the immediate area. The rapid growth of the population in the San Angelo area together with the general scarcity of fishing opportunities in west Texas indicated that this reservoir will be heavily utilized by fishermen. It has been estimated that about 50 percent of the use of this reservoir will come from nonlocal fishermen. The construction of this reservoir, plus the attendant im-

provement in stream fishing, plus the wildlife improvement resulting from the development of the project, will result in annual benefits of about $307,000. Consideration of these benefits alone would justify an investment in excess of $11 million for fish and wildlife improvement over a 100-year period. Because of the magnitude and wide incidence of benefits, we have recommended that the fish and wildlife allocation of the San Angelo project be nonreimbursable. The Acting Secretary of the Interior in his letter transmitting the report to the President supported this view and recommended that the plan of development for this project be authorized as set forth in the report.

The allocation of $4,029,000 to fish and wildlife results from the application of the separable costs-remaining benefits method of cost allocation which is the method used and preferred by those agencies concerned with water resource development. Under this procedure each purpose bears its own separable costs and shares in the joint costs of the project.

RESERVOIR CAPACITY

Mr. JENSEN. What is the storage capacity of the various reservoirs in this area, and how are they operated to provide for irrigation and municipal and industrial water?

Mr. DOMINY. In addition to Twin Buttes Reservoir being constructed as the main feature of the San Angelo project, there are two existing reservoirs in the immediate vicinity of the project. San Angelo Reservoir on the North Fork Concho River is a conservation and flood control reservoir constructed by the Corps of Engineers, Department of the Army. Lake Nasworthy, owned by the city of San Angelo, is located on the South Fork Concho River immediately below the site of Twin Buttes Dam and is used for municipal water and recreation. The storage capacities of these reservoirs are tabulated below:

	Twin Buttes	Nasworthy	San Angelo
Flood control	430,000		277,200
Conservation	150,000	12,550	80,400
Other	20,000		38,800
Total controlled	600,000	12,550	396,400

The plan of operation of these reservoirs for municipal and industrial water and for irrigation contemplates that municipal and industrial water shall first be taken from storage in the conservation pool of San Angelo Reservoir, then from conservation storage in Twin Buttes Reservoir, then from conservation storage in Nasworthy Reservoir and finally from reserve storage in San Angelo Reservoir. The reserve storage in San Angelo Reservoir although classed as dead storage is capable of being withdrawn for municipal use. Requirements for irrigation diversions will be met from Twin Buttes Reservoir under an arrangement which basically provides that irrigation shall have the use of 100,000 acre-feet of the conservation space and municipal and industrial water shall have the use of 50,000 acre-feet of space. Arrangements mutually agreeable to both irrigation and municipal and industrial water interests have been negotiated through which this distribution of space is adjusted to the credit of municipal and industrial water during periods of adverse water supply and under future conditions of increased municipal and industrial water demand.

FLOOD CONTROL

Mr. JENSEN. Is a specific amount of storage space held for flood control and emptied immediately after each flood flow?

Mr. DOMINY. Storage space amounting to 430,000 acre-feet has been allocated to flood control in Twin Buttes Reservoir. The use of this space will be controlled by regulations promulgated by the Chief of Engineers, Department of the Army. Under such regulations, which have yet to be formalized, the space may or may not be evacuated immediately after floods depending on conditions downstream in the basin and the capacity of the river to handle flood releases from the reservoir. In any event, water would not be stored in the flood control space beyond the time required to remove it without causing local flooding conditions.

Mr. JENSEN. What part of the irrigation acreage is in cotton? Wheat?

Mr. DOMINY. At the present time the lands in the project area are being utilized for the type of production for which they are best suited under dry land conditions. Cotton occupies about 50 percent of the farm acres. This represents the historical base cotton acreage for this area. Under future conditions with the project, cotton will continue to be the most important crop grown and it is anticipated that this crop will continue to be grown on 50 percent of the acres. Wheat is not grown in the project area.

PROVO RIVER PROJECT, UTAH

Mr. KIRWAN. Provo River project, $825,000. Insert pages 206 through 211.

(The matter referred to follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Bonneville Basin, Central Utah, in Utah, Wasatch, Summit, and Salt Lake Counties

AUTHORIZATION: Approved by the President, November 16, 1935. B/C RATIO: None--Construction initiated prior to requirement

LAND CERTIFICATION: None Required. DEFINITE PLAN REPORT: Deer Creek powerplant, approved by Commissioner Sept. 10, 1952.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 35,908,329	Appropriations to June 30, 1959	$ 33,951,808
Net Property and Other Transfers	405,868	Appropriations for F. Y. 1960	518,700
Cash Advances--Non-Federal	.....	Appropriations to Date	34,470,508
Adjustment	.....	Initial Underfinancing F. Y. 1960	97,500
		Appropriations Required for F. Y. 1961	825,000
Total to be Allocated	$ 36,314,197	Balance to Complete after F.Y. 1961	$ 515,321

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 9,287,581	Amount Repaid by Irrigators	$ 8,768,237	Irrig. Invest. per Acre $ 199	Payment Capacity per Acre $ 3.09
Power 1/	1,083,532	Amount Repaid by Power	2,245,013	Repayment of Investment per acre:	Annual Charges:
M. & I. Water	25,812,953	Amount Repaid by M. & I. Water	25,170,816	By Irrigators $ 188	O. & M. $ .53
Flood & Nav. Costs & Costs Prog. contributions 2/	130,131	C.C.C. Costs & Costs from Contributions	130,131	By Power Revenues 11	Construction 2.56
		Non - Reimbursable		By M. & I. Water Users -	
Total	$ 36,314,197	Total	$ 36,314,197		Total $ 3.09

STATUS OF REPAYMENT CONTRACT: Contract executed June 27, 1936; amended February 2,1949, with Provo River Water Users' Association for repayment of the Deer Creek division costs. Contract executed with Metropolitan Water Users' Association November 16, 1938, amended February 14, 1942, for repayment of the Aqueduct division costs. Provo River Water Users' Association and Metropolitan Water District executed a supplemental contract November 10, 1959 for accelerated repayment of Deer Creek division costs.

PRINCIPAL FEATURES

	Size or Cap.	Completion 1-1-60	Date		Size or Cap.	Completion	Date
Provo River Channel Revision	35 Mi.	45	6-62				[1]
Duchesne Tunnel	6 Mi.	99	12-60				
Deer Creek Powerplant	4,950 Kw.	99	11-59				

Acreage Full Supply 0 Supplemental Supply 46,609 Total Acres 46,609 Power kw 4,950

Region	Date	Project and State
4	1-18-60	Provo River Project, Utah

BR-206

[1] Does not include interest during construction—not required.
[2] Includes $58,334 spent from CCC funds and $71,797 contributions.
[3] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$9,290,877	$9,287,581
Power	1,059,695	1,083,532
M & I water	25,833,603	25,812,953
CCC costs and contributions	58,334	130,131
Total	36,242,509	36,314,197

Change in total to be allocated results from the increase in total obligations for channel right-of-way, construction costs for Deer Creek powerplant and the addition of investigations costs on abandoned Utah Lake division. The item for contributions was previously merged with the allocations to purposes but is herein set out for clarity of presentation. Increases to Deer Creek powerplant are assigned to the power allocation. Changes in irrigation and M. & I. water are the net of increased obligations and the removal of a proportionate amount of the contributions item.

NOTE.—Data for benefit-cost computations not available inasmuch as construction of Provo River Project was commenced before benefit-cost ratio was adopted as indication of project justification.

Agricultural production present and future

The crops presently grown are forage, cereals, vegetables, and truck, deciduous fruits, berries and field crops. Future crops, same.

JUSTIFICATION

Description.—This project located in central Utah is a multipurpose project which provides a supplemental water supply for 46,600 acres of land in the central section of the State of Utah, 57,500 acre-feet of municipal and industrial water and a power supply of 4,950 kilowatts. The irrigation and municipal and industrial water facilities are operated and maintained by the water users. The Deer Creek powerplant is operated and maintained by the Provo River Water Users' Association, under contract, with payment from appropriated funds.

Work proposed, fiscal year 1961

Appropriation title.—Construction and rehabilitation.

Provo River channel revision, $757,296.—The program provides for continuation of the acquisition of rights-of-way, including flood easements, along the Provo River and the construction of dikes, bank protection facilities, and channel corrections along the river.

Duchesne tunnel, $67,162.—For installation of control gates at the tunnel inlet to regulate the tunnel flows, and construction of access road to the tunnel inlet.

Consolidated expenditures and credits, $542.—Minor adjustments.

Change in total obligations

	Obligations
1960 congressional justification	$35,610,306
1961 congressional justification	35,908,329
Increase	298,023

The change in total obligations is due to adjustments to reflect final costs on completed features which increase the total $15,721, increased right-of-way acquisition cost of $45,958, and to reflect adjustment of prior year transactions totaling $236,344 which have no affect on future fund requirements.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Completed features[1]	$22,071,633	$22,071,633			
Provo River channel revision	3,862,336	1,712,409	$876,534	$757,296	$516,097
Duchesne tunnel	9,274,374	9,196,612	10,600	67,162	
Deer Creek powerplant	989,799	988,813	986		
Other project costs	116,055	116,055			
Consolidated expenditures and credits	−405,868	−401,126	−4,508	542	−776
Total expenditures	35,908,329	33,684,396	883,612	825,000	515,321
Undelivered orders		2,412	−2,412		
Total obligations	35,908,329	33,686,808	881,200	825,000	515,321
Method of financing:					
Appropriation, fiscal year 1960			518,700		
Application of prior year funds			265,000		
Initial underfinancing			97,500		
Appropriation required				825,000	515,321

[1] Includes Deer Creek Dam and appurtenant works, Weber-Provo diversion canal, Murdock diversion dam, Provo Reservoir canal, Salt Lake aqueduct, Deer Creek substation, Deer Creek transmission and supply line, and general property.

Operation and maintenance

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from fiscal year 1960
Work proposed, fiscal year 1961: Provo River project, Deer Creek division. Normal operation and maintenance of Deer Creek powerplant will be continued. Increase is due to requirement for additional materials and supplies and wage board increases	$19,317	$23,750	+$4,433
Total obligations	19,317	23,750	+4,433
Appropriation available and required	19,317	23,750	+4,433

Project statistics

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Power system:				
Annual sales	Kilowatt-hour	15,806,647	17,000,000	19,000,000
Revenues from sale of electrical energy	Dollar	47,931	57,800	71,800
Powerplants	Number	1	1	1
Plant capacity (nameplate capacity)	Kilowatt	4,950	4,950	4,950
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land-supplemental	Acre	46,609	46,609	46,609
Irrigated area	do.[1]	37,674	38,000	38,500
Gross crop value	Dollar[1]	3,475,568	3,610,000	3,850,000
Average gross crop value per acre	do.[1]	92.25	95	100
Storage dams and reservoirs	Number	1	1	1
Diversion dams	do	1	1	1
Pumping plants	do	1	1	1
Canals	Mile	72.6	72.6	72.6

[1] Figures on calendar year basis.

Mr. KIRWAN. No questions.

WEBER BASIN PROJECT, UTAH

Weber Basin project, $8 million.
Insert pages 212–217.
(The matter referred to follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Great Basin, Weber River Basin, North Central Utah, in Weber, Davis, Morgan and Summit Counties
The City of Ogden is in the project area.

AUTHORIZATION Act of August 29, 1949 — B/C RATIO 2.8 — Date Dec. 1958

LAND CERTIFICATION Secretary July 25, 1952 — DEFINITE PLAN REPORT Appv'd by Commissioner 7-22-53

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 95,750,000	Appropriations to June 30, 1959	$ 38,858,153
Net Property and Other Transfers	1,720,000	Appropriations for F. Y. 1960	1,251,120
Cash Advances--Non-Federal		Appropriations to Date	42,819,343
Adjustment		Initial Underfinancing F. Y. 1960	0
		Appropriations Required for F. Y. 1961	8,283,000
Total to be Allocated	$ 97,500,000	Balance to Complete after F.Y. 1961	$ 43,577,557

ALLOCATIONS 2/		REPAYMENT 2/		AMOUNTS PER ACRE			
Irrigation	$56,251,000	Amount Repaid by Irrigators	$ 24,154,600	Irrig. Invest. per Acre	$ 479	Payment Capacity per Acre	7/ $ 5.40
Power	1/	Amount Repaid by Power	4/	Repayment of Investment per acre:		Annual Charges:	
M. & I. Water	25,405,000	Amount Repaid by M. & I. Water	11,227,500	By Irrigators	$ 217	O. & M.	$ 2.00
Flood & Nav.	6,558,000	Advalorem Tax Revenue	21,252,000	By Power Revenues		Construction	3.40
Recreation	4,738,000	Sales Surplus Energy	2,417,000	By M & I Water Users	166		
Fish & Wl.	4,548,000	Non - Reimbursable	35,894,000	By Advalorem Tax	95		
Total	$ 97,500,000	Total	$ 97,500,000	Sales Surplus Energy	21	Total	$ 5.40

STATUS OF REPAYMENT CONTRACT: Repayment contract with Weber Basin Water Conservancy District executed on December 12, 1952. Repayment contract obligation is $57,694,000. Negotiations are under way to increase this obligation to the amount necessary to cover repayment of the increased costs.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Pineview Dam and Reservoir	110,000 A.F.	81	3/	Weber Aqueduct & Laterals	80 cfs	92	6-60
Wanship Dam and Reservoir	60,000 A.F.	99	4/	Davis Aqueduct & Laterals	322 cfs	57	3-64
Upstream Development	various	1	6-64	Layton Canal, Pump & Laterals	360 cfs	4	5-62
Willard Dam and Reservoir	215,000 A.F.	31	12-63	Warren Canal and Laterals	245 cfs	2	5-65
Lost Creek Dam & Reservoir	20,000 A.F.	2	6-66	Willard Canal and Pumps	1,120 cfs	3	5-61
East Canyon Dam & Reservoir	52,000 A.F.	2	7-67	Drains		12	2/
Provo-Jordan Diversion Works	1,700 cfs	98	4-60	Power Facilities	5,700 Kw	22	4-62
Provo-Jordan Tunnel	1,700 cfs	68	10-60	Power Transmission Facilities		27	4-62
				Permanent Operating Facilities		50	7-68

Acreage Full Supply 43,990 — Supplemental Supply 70,750 — Total Acres 110,740 — Power kw 5,700 kw

Region	Date	Project and State
4	1-18-60	Weber Basin Project, Utah

SR-212

[1] Project power facilities to be used for project pumping and cost allocated accordingly.
[2] 60-year repayment period authorized.
[3] Pineview Dam completed except for settlement of claim by Ogden River Water Users' Association.
[4] Wanship Dam now completed except annual payments on water purchased, the consummation of a water exchange and power wheeling agreement with the power company, and the consummation of a contract with the Weber River Water Users' Association for the use of Echo Dam for flood control.
[5] Construction of drains may continue for 10 years or longer.
[6] Includes interest on M. & I. investment applied to repayment of irrigation costs.
[7] Exclusive of costs of nonproject facilities.
[8] Revision currently under review.
[9] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$43,692,000	$56,251,000
M. & I. water	17,130,000	25,405,000
Flood control	7,393,000	6,558,000
Recreation	3,568,000	4,738,000
Fish and wildlife	1,730,000	4,548,000
Total to be allocated	73,513,000	97,500,000

Total to be allocated has increased through a thorough revision and review of the plan of development and an updating of the cost estimates for all of the facilities in the plan. Costs were previously allocated by a combination of methods no longer considered to be most appropriate; whereas present costs have been allocated by the separable costs-remaining benefits method adopted by the Department of the Interior and other Federal water resource development agencies. No detailed explanation of specific increases or decreases can be stated practicably, although it can be generally stated that the increases to irrigation and M. & I. water while being affected by the change in method are due almost in their entirety to cost increases. Changes in other purposes are more nearly attributable to the change in method of allocation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 2.30.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.35.

Agricultural production present and future

Crops presently produced are fruits, vegetables, alfalfa, and grains. Development of the project will not introduce new crops but the same crops will be produced in greater quantities.

JUSTIFICATION

Description.—This multipurpose project is located in north central Utah. It will provide a full supply of water for the irrigation of 41,990 acres, a supplemental supply for 70,750 acres, and water for municipal and industrial consumption. In addition, the project will produce a power supply of 5,700 kilowatts for project pumping, protect fish and wildlife and provide flood control and recreation benefits.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Wanship Dam and Reservoir, $493,000.—Provides for the execution of a water exchange and power wheeling agreement with the Utah Power & Light Co., major feature of which is a payment this year to the power company for depletion of the water supply to its Riverdale powerplant. The water is being diverted and used by the project. Also provides for minor water right purchases.

Upstream development, $35,000.—For investigations leading toward start of construction after fiscal year 1961 of Causey Dam and Reservoir, and the Ogden Valley Canal, to serve project lands upstream from Pineview Reservoir.

Willard Dam and Reservoir, $2,900,000.—This amount is for continued construction of the dam.

Lost Creek Dam and Reservoir, $4,000.—Represents investigations leading toward start of construction after fiscal year 1961.

East Canyon Dam and Reservoir (enlargement), $3,000.—For investigations leading toward start of construction after fiscal year 1961.

Gateway Canal and diversion works, $15,000.—For correction of minor construction deficiencies on the canal.

Davis aqueduct, laterals, and wells, $1,473,000.—Provides for the continuation of construction of the laterals, largely in the North Davis area (east of Hill Field) and the West Farmington area, and the purchase or construction of a well in the Bountiful area.

Dayton Canal, pump, and laterals, $41,000.—Provides for investigations leading toward start of construction after fiscal year 1961.

Warren Canal (enlargement) and laterals, $2,000.—For investigations leading toward start of construction after fiscal year 1961.

Willard Canal and pumps, $2,932,000.—Provides for the beginning of construction of the Willard Canal and the three Willard pumping plants. Also includes purchases of right-of-way.

Drains, $40,000.—Provides for continuation of work on the project drainage system.

Recreational development, $210,000.—For continued construction of basic recreational facilities at Pineview Reservoir.

Permanent operating facilities, $50,000.—For the purchase (either new or from Government surplus) of trucks, small tractors, and miscellaneous equipment to be used by the Weber Basin Water Conservancy District in the operation and maintenance of completed aqueducts and laterals.

Service facilities, depreciation, and salvage, −$20,000.—Represents cost of service facilities procured in prior years which will be distributed to permanent property this fiscal year.

Consolidated expenditures and credits, $27,000.—For the operation and maintenance of the Gateway and Wanship powerplants prior to completion of the pumping plants, $28,000, offset by cost of stores of $1,000 procured in prior years which will be distributed to permanent property this fiscal year.

Undelivered orders, $78,000.—Represents net change in obligations for goods and services on order but not yet received.

Changes in total obligations

	Obligations
1960 congressional justification	$71,735,000
1961 congressional justification	95,780,000
Increase	24,045,000

Review of the Weber Basin project estimate which has been underway for some time and which has been the subject of discussion during the House hearings on the fiscal year 1959 budget and again at the hearings last year has now been completed. The new total project obligation estimate reflects the following increases:

$5,450,000 for the addition of upstream development of Causey Reservoir and Ogden River Canal to serve about 5,000 acres in the Huntsville area above Pineview Dam; $3,025,000 as a result of the allowance for greater capacities and other factors in connection with the construction estimates of Lost Creek and East Canyon Dams and Reservoirs; $5,387,000 to accomplish a greater length and assure a stable structure for Willard Dam; $3,822,000 for the three Willard pumping plants to allow for use of piling to correct unsatisfactory foundation conditions and other problems; $1,225,000 to allow for additional inlet structures, pumping plants, and other modifications on the Davis aqueduct; $1,191,000 for revision in the design of the Davis aqueduct lateral systems largely because of changes from laterals to pipes; $1,434,000 for a more extensive project drainage system; $1,170,000 for additional recreational facilities based on National Park Service plans; $394,000 for the additional rehabilitation work on the Layton Canal lateral system; $200,000 for additional equipment to be furnished the water users for operation and maintenance; and $747,000 for a number of miscellaneous estimate modifications.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
CONSTRUCTION PROGRAM					
Pineview Dam and Reservoir (enlargement)	$4,600,000	$3,704,080	$535,920		$360,000
Wanship Dam and Reservoir	6,836,000	6,050,608	32,392	$493,000	260,000
Upstream development	5,450,000	8,013	31,987	35,000	5,375,000
Willard Dam and Reservoir	15,774,000	3,270,776	3,581,224	2,900,000	6,022,000
Lost Creek Dam and Reservoir	5,824,000	124,311	4,689	4,000	5,691,000
East Canyon Dam and Reservoir (enlargement)	3,548,000	62,564	3,436	3,000	3,479,000
Slaterville diversion works	750,000	727,318	22,682		
Gateway Canal and diversion works	7,973,000	7,757,891	61,109	15,000	139,000
Weber aqueduct and laterals	2,861,000	2,560,085	300,915		
Davis aqueduct, laterals and wells	17,385,000	9,226,929	1,985,071	1,473,000	4,700,000
Layton Canal, pump, and laterals	3,905,000	144,678	46,322	41,000	3,673,000
Warrent Canal (enlargement) and laterals	1,069,000	19,051	1,949	2,000	1,046,000
Willard Canal and Pumps	9,747,000	249,392	466,608	2,932,000	6,099,000
Drains	7,244,000	859,291	45,709	40,000	6,299,000
Power facilities	1,547,000	1,534,328	12,672		
Recreational development	2,545,000	646,199	151,801	210,000	1,537,000
Permanent operating facilities	292,000	86,638	5,362	50,000	150,000
Service facilities, depreciation, and salvage		192,435	−20,000	−20,000	−152,435
Other project costs	150,000	20,900			129,100
Consolidated expenditures and credits	−1,720,000	−1,088,870	−64,448	27,000	−593,682
Total expenditures	95,780,000	36,156,617	7,205,400	8,205,000	44,212,983
Undelivered orders		2,585,578	−2,128,252	78,000	−535,326
Total obligations	95,780,000	38,742,195	5,077,148	8,283,000	43,677,657
Method of financing:					
Appropriation, fiscal year 1960			4,961,190		
Application of prior year funds			115,958		
Appropriations required				8,283,000	43,677,657

COST INCREASE

Mr. KIRWAN. Extensive changes have been made on this project. The cost is up $24,045,000.

The report is under review. Please explain what this is all about, how you got into this predicament, and what effect it all has on repayment of the project investment?

Mr. DOMINY. Mr. Chairman, I will be very happy to do that.

Two years ago I advised the committee we had failed to index up the costs of the Weber basin project to current levels and I reported that we would, in connection with the 1960 budget request, revise the budget estimates to a realistic figure based on today's costs and prices.

We did show some increase last year as a result of our preliminary look-see into it but we still did not have the final revisions that are now incorporated in the plan, with up-to-date prices based on our history of what work has already been built.

Now, to be specific the total estimated cost presented in the 1960 budget was shown as $73,513,000. And the total estimated cost presented in this budget now is $97,500,000, with a difference of $23,987,000.

This difference between total obligations shown in fiscal 1961 budget—with the addition of upstream development of the Causey Reservoir—and Ogden Valley Canal contributes to $5,450,000 of this increase.

WILLARD DAM MODIFICATION

The modification of plans and designs of Willard Dam accounts for $5,387,000 of the increase.

Now, this is brought about by the fact that the foundation conditions at Willard Dam have proved to be of a more serious character than was originally anticipated.

Mr. KIRWAN. What was the project estimated to cost when it started years ago?

Mr. DOMINY. Approximately $70 million was the original estimate at the time of authorization.

Mr. KIRWAN. That is one of the big projects?

Mr. DOMINY. Yes, sir.

Mr. KIRWAN. Who gets the water from it now?

Mr. DOMINY. It is that whole Ogden River area including a number of municipalities and a number of ditch companies and irrigation districts.

Mr. KIRWAN. Big companies also participate?

Mr. DOMINY. Through municipal and industrial water supplies they do; yes, sir.

Mr. KIRWAN. It takes care of the industry in their town there, Ogden, and the different places?

Mr. DOMINY. That is right, sir.

Mr. KIRWAN. Industry then gets a good break out of it?

Mr. DOMINY. That is right. This isn't strictly irrigation. A good bit of it is municipal and industrial water.

Now, let me cover the rest of the increased cost items.

The increased capacities and other factors in the estimates for Lost Creek——

Mr. CANNON. Mr. Chairman, we are accustomed to these big jumps in estimated cost but this is phenomenal: $24 million.

Is the only explanation of this extraordinary increase difficulty with foundations?

Mr. DOMINY. No, sir, that accounts only on the Willard Dam for $5,387,000 of the increase.

Mr. CANNON. Did you run into quicksand?

Mr. DOMINY. We ran into a problem requiring a great deal wider base to the Willard Dam, which is a dam involving earthfill and long dikes and, therefore, the quantities of material and to establish a satisfactory foundation condition is running a great deal more than we had anticipated and this accounts for $5,387,000 of this increase.

Here, also, we are including for the first time the estimates for some of the upstream features which were in the authorized plan but had not been definitively appraised and priced in this original estimate.

Mr. CANNON. What is the character of those upstream features of the dam?

Mr. DOMINY. Some dams and reservoirs fairly modest in size that are being constructed up in the headwaters.

Mr. CANNON. Supplemental to this dam?

Mr. DOMINY. Supplemental to the main storage structures; yes, sir.

But this is a district that covers a large territory, Mr. Cannon, and in building some of the large storage features we disrupted the economy of these upstream areas and since they are all being taxed to help pay for this project in addition to the water users who actually get the water, the conservancy district is anxious to build some of these upstream features to replace the economy that has been disturbed by some of the larger storage reservoirs and all of it will be repaid except for the nonreimbursable allocation.

REPAYMENT CONTRACT

The CHAIRMAN. Of this $24 million how much of that will be repaid?

Mr. DOMINY. The total cost of this project—out of the total cost of $97,500,000—all of it will be repaid except a flood control allocation of $6,558,000 and the recreation allocation of $4,738,000, and a fish and wildlife allocation of $4,548,000. So there is about $15.8 million out of the $97.5 million that is nonreimbursable.

Mr. KIRWAN. On page 212 you say negotiations are underway to increase repayment to cover the added cost. What assurance do you have that they will succeed?

Mr. DOMINY. I am sure that we will have no difficulty because we have this big conservancy district and the demand for the water is so great in this area they have had no difficulty in making the supplemental contracts with additional water users who want to get the water, but we wouldn't build any of these additional features until appropriate arrangements had been completed.

Mr. KIRWAN. You are going to get money, then?

Mr. DOMINY. I am satisfied that we will, sir.

NEW CONTRACTS IN 1961

Mr. KIRWAN. What part of the funds are for new contracts to be executed in 1961?

Mr. DOMINY. The money we are requesting in 1961 is largely for going work. The only new major feature starting construction is the Williard canal and pumps.

We also have $35,000 for this upstream development with regard to the Causey Dam and Reservoir which would be involved in this additional increased amount and we would want repayment assurances before we actually started construction work on that feature.

RECREATION FACILITIES

Mr. KIRWAN. You are increasing your recreational facilities by $1,170,000 to a total of $2,545,000. Based on the National Park Service plan. Give us a breakdown of this estimate showing facilities you originally planned and those the Park Service says you must have in addition.

Mr. DOMINY. What was that, sir?

Mr. KIRWAN. Show us what the Park Service says you must have in addition, along with what you originally planned.

Mr. DOMINY. May we supply that for the record?

Mr. KIRWAN. Supply that for the record.

You try to get what the park department has in mind, there and what they are planning.

Mr. DOMINY. We will be glad to do that, Mr. Kirwan. Briefly, the recreation facilities that are being constructed under this authorization will be at the Wanship Reservoir which attracts a great number of visitors, being close to Salt Lake City and Ogden.

There will also be recreation facilities at Pine View Reservoir which is being increased in size. The dam has been raised to make a much larger reservoir.

Mr. KIRWAN. Let us know how much land you have there. Give us a full report. Why buy more land if you have enough land around your reservoir to put in a fine recreation center without buying a lot more acreage?

(The information requested follows:)

A total of 247 acres has been acquired specifically for recreational use. An additional 1,345 acres, acquired to meet primary project needs, will also be used for planned recreational development. No further acquisition of lands, for recreation purposes only, is contemplated. However, of the additional lands needed to meet primary project needs, about 19 acres will be used for future development of planned recreation facilities.

COMPARISON OF RECREATIONAL FACILITIES AND COSTS, 1951 REPORT—1959 REPORT

The current estimates for recreation facilities, except for some $40,000 of noncontract costs, are within the ceiling of the National Park Service 1951 planning report after allowance is made for price increases that have occurred since November 1951. The present report is not identical with the 1951 report regarding details of public-use facilities to be constructed under the proposed plan. Changes and refinements have been made in view of population increases, changes in project features, and other reasons. The cost breakdown by reservoir areas, comparing 1951 estimates with current estimates, is as follows:

Reservoir	NPS report of November 1951	USBR estimates of Oct. 1, 1959, based on present NPS plan
East Canyon	$41,000	$89,200
Rockport (Wanship)	166,100	327,000
Pineview	531,665	1,055,400
Willard	636,535	1,009,200
Lost Creek	0	65,000
Total	1,375,300	2,545,800

Detail breakdown for each reservoir area is as follows (Federal costs only):

Recreational facilities

EAST CANYON RESERVOIR

1951 report:	
Loop road within area	$8,000
Parking areas for cars	3,000
Parking area for boat trailers	4,000
Launching ramp	3,500
Landing dock	500
Picnic and camping areas, including tables, fire grates, garbage receptacles, pit toilets, shelters, etc	3,700
Planting and establishment, trees and shrubs	4,700
Grading and miscellaneous landscaping including beach development	2,000
Water well with hand pump	600
Subtotal	30,000
Contingencies (10 percent)	3,000
Subtotal	33,000
Plans, surveys, and supervision of construction (approximately 25 percent)	8,000
Estimated development cost	41,000
Land chargeable to recreation	0
Total estimated cost	41,000
1959 report—Public use facilities:	
Roads	16,000
Parking areas	8,000
Barriers	3,800
Signs	100
Boat launching ramp and moorage	24,000
Picnic and camping units (50)	7,500
Site preparation	2,500
Sanitary facilities	3,000
Water supply	2,000
Subtotal	66,900
Contingencies (10 percent)	8,920
Subtotal	75,820
Plans, surveys, etc. (15 percent)	13,380
Total nonrepayment cost	89,200

WANSHIP RESERVOIR

1951 report:	
Access road (from U.S. 189 to launching ramp)	50,000
Bridge (on access road, over Weber River)	22,000
Spur roads (to overlook and to camping areas)	15,000
Launching ramp	5,000
Parking areas for cars	5,100
Parking for boat trailers	5,000
Picnic and camping areas, including tables, fire grates, garbage receptacles, pit toilets, shelters, etc	6,600
Beach development	5,000
Planting and establishment, trees and shrubs	5,000
Water well and hand pump	600
Miscellaneous landscaping	1,000
Subtotal	120,300

Recreational facilities—Continued

WANSHIP RESERVOIR—continued

1951 report—Continued	
Contingencies (10 percent)	12,030
Subtotal	132,330
Plans, surveys, and supervision of construction (approximately 25 percent)	33,070
Estimated development cost	165,400
Land chargeable to recreation	700
Total estimated cost	166,100
1959 report—Public use facilities:	
Roads	97,000
Parking areas	14,000
Barriers	4,000
Signs	500
Boat launching ramp	26,200
Picnic areas	10,000
Camping areas	3,000
Water supply systems	28,500
Sanitary facilities	12,300
Irrigation system	12,000
Site preparation	8,500
Subtotal	216,000
Contingencies (10 percent)	28,800
Subtotal	244,800
Plans, surveys, etc	82,200
Total	327,000

PINEVIEW RESERVOIR

1951 report:	
Public facilities, complete development of 9 general areas, including 14 large group picnic areas	63,000
27 small group picnic areas	48,600
350 single family units	315,000
Estimated Federal development cost	426,600
Land chargeable to recreation	105,065
Total estimated Federal cost	531,665
1959 report—Public use facilities:	
Cost of basic facilities covered in memorandum of understanding	314,400
Cost of additional basic facilities for complete development	613,500
Costs prior to agreement	16,822
Right-of-way	60,700
General overhead (5 percent)	50,000
Total nonrepayment cost	1,055,422
Rounded	1,055,400

Recreational facilities—Continued

WILLARD RESERVOIR

1951 report:	
Beach section:	
Road, primary, to public use areas	27,000
Parking areas	15,000
Road, secondary, to service court and residence	1,500
Beach development	12,000
Picnic areas, with tables, fire grates and garbage receptacles	15,000
Picnic shelter	5,000
Beach clothes, change units (6 6-person units)	7,500
Toilet buildings (3) at beach picnic areas, playfields	24,000
Utility and service court	10,000
Custodian residence	10,000
Planting and general landscape	25,000
Water system	15,000
Power system	3,000
Sewerage system	15,000
Miscellaneous	5,000
Subtotal	190,000
Contingencies (10 percent)	19,000
Subtotal	209,000
Plans, surveys, and supervision of construction (approximately 25 percent)	52,500
Total estimated Federal development cost	261,500
Land chargeable to recreation	25,800
Total estimated Federal cost	287,300
Boating and fishing section:	
Road, primary, to major use areas	38,500
Road, secondary, spurs to picnic areas	15,000
Parking areas, for cars and for trailers	20,000
Launching ramp and boat area peninsula development	50,000
Picnic areas, with tables, fire grates and garbage receptacles	15,000
Pavilion	5,000
Toilet buildings, picnic area and boating area	16,000
Planting and general landscaping	30,000
Water system	15,000
Power system	5,000
Sewerage system	15,000
Miscellaneous	5,000
Subtotal	229,500
Contingencies (10 percent)	22,950
Subtotal	252,450
Plans, surveys, and supervision of construction (approximately 25 percent)	63,050
Total estimated Federal development cost	315,500
Land chargeable to recreation	33,735
Total estimated Federal cost	349,235
Grand Total	636,535

Recreational facilities—Continued

WILLARD RESERVOIR—continued

1959 report—Public use facilities:	
Roads	108,800
Parking areas	186,500
Barriers	23,600
Signs	900
Boat launching ramp	50,000
Marina development	45,000
Beach development	42,200
Picnic areas	90,900
Overlook interpretative shelter	1,500
Water supply system	60,000
Sanitary system	68,000
Power distribution	17,000
Irrigation system	28,500
Site preparation	34,000
Subtotal	756,900
Contingencies (10 percent)	100,920
Subtotal	857,820
Plans, Surveys, etc. (15 percent)	151,380
Total	1,009,200

LOST CREEK RESERVOIR

1951 report: No development recommended.	
1959 report—Public use facilities:	
Roads	20,000
Parking areas	5,000
Barriers	4,000
Signs	100
Boat launching ramp and moorage	5,000
Picnic and camping units (45)	6,800
Site preparation	2,500
Sanitary facilities	3,000
Water supply	2,000
Subtotal	48,400
Contingencies (10 percent)	6,453
Subtotal	54,853
Plans, surveys, etc. (15 percent)	9,680
Total nonrepayment cost	64,533
Rounded	64,500

GREATER WENATCHEE DIVISION, WASHINGTON

Mr. KIRWAN. Chief Joseph Dam project, Greater Wenatchee division, $2 million.

Insert pages 218 to 222.

(The matter referred to follows:)

PF - 65
(7 - 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Columbia River Basin in Chelan and Douglas Counties, Washington, along the Columbia River near Wenatchee and Chelan, Washington.

AUTHORIZATION Act of May 5, 1958 — B/C RATIO 5.71 3/ — Date May, 1959

LAND CERTIFICATION November 2, 1959 — DEFINITE PLAN REPORT Approved by Commissioner 8-11-59 on condition of minor revisions.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 7,540,000	Appropriations to June 30, 1959	$
Net Property and Other Transfers	266,000	Appropriations for F. Y. 1960	414,375
Cash Advances--Non-Federal		Appropriations to Date	414,375
Adjustment 1/	478,000	Initial Underfinancing F. Y. 1960	- - -
		Appropriations Required for F. Y. 1961	2,000,000
Total to be Allocated	$ 8,284,000	Balance to Complete after F.Y. 19 61	$ 5,125,685

ALLOCATIONS

Irrigation	$ 8,194,000
Power	- - -
M. & I. Water	- - -
Flood & Nav.	- - -
Fish & Wildlife	90,000
Total	$ 8,284,000

REPAYMENT 2/

Amount Repaid by Irrigators	$ 4,470,000
Amount Repaid by Power	3,724,000
Amount Repaid by M. & I. Water	- - -
Non - Reimbursable	90,000
Total	$ 8,284,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 1,223
Repayment of Investment per acre:	
By Irrigators	$ 667
By Power Revenues	556
By M & I Water Users	--
Payment Capacity per Acre	$30.05
Annual Charges:	
O. & M.	$16.71
Construction	13.34
Total	$30.05

STATUS OF REPAYMENT CONTRACT: Approved by Secretary July 29,1959, and ratified by water users' September 22, 1959. Court confirmation scheduled for early in calendar year 1960.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
East Unit	4,460 Ac.						
Pumping Plant, substation & related facilities	75 Cfs. 677 Ft.	5	10-62	Permanent Operating Facilities		3	6-62
Lift							
Lateral System	35.5 Mi.	4	9-62				
Howard Flat Unit	960 Ac.	2	12-63				
Brays Landing Unit	1320 Ac.	-	4-65				

Acreage Full Supply 6,700 — Supplemental Supply - - - — Total Acres 6,700 — Power kw - - -

Region	Date	Project and State
1	1/18/60	Chief Joseph Dam Project, Greater Wenatchee Division, Washington

BR-218

1 Funded operating costs during a 10-year development period.
2 Based on 50-year period.
3 Based on 60-year period of analysis and the inclusion of $626,000, allocated cost from Chief Joseph Dam project.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.79.
Benefit-cost ratio based on total benefits and 3 percent interest is 5.08.

Agricultural production, present and future

Crops on project lands presently irrigated are hard and soft fruit (apples and cherries). These lands account for approximately 18 percent of the irrigable division area. The remaining 82 percent are nonirrigated lands used for grain crops (wheat) and light grazing. With project development, the latter lands would also be used to produce hard and soft fruit.

JUSTIFICATION

Description.—This single-purpose project will provide a full water supply for 6,700 acres of new land in the north-central section of the State of Washington.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

East unit pumping plant, substation, and related facilities, $1,511,900.—Work will continue under the construction contract for the pumping plant, discharge line, 2-million-gallon reservoir, and substation, and under a supply contract for the pumping units. Construction of distribution lines will begin and transformers purchased.

East unit lateral system, $432,000.—The program provides for the acquisition of rights-of-way, completion of final designs, and start of construction.

Howard Flat unit, $85,000.—Collection of design data will continue, preparatory to award of construction contracts after fiscal year 1961.

Brays Landing unit, $3,000.—For preliminary fieldwork.

Permanent operating facilities, $16,100.—For acquisition of right-of-way, collection of field data, and preparation of specifications for constructing the east unit caretaker's residence, and a combined office and shop building, equipment shed, and residence for the irrigation district headquarters.

Service facilities, depreciation and salvage, $5,000.—Automotive and work equipment totaling $10,000 will be procured, partly offset by costs of $5,000 distributed to project features on use basis during the year.

Consolidated expenditures and credits, —$3,000.—Represents nonappropriation transfer of office equipment and furniture from other Bureau offices and charges from Solicitor's Office, financed from appropriation to that Office.

Undelivered orders, —$50,000.—Net change in obligations for services which were on order but not delivered at the close of fiscal year 1960.

Changes in total obligations

	Obligations
Fiscal year 1960 congressional justification	(1)
Fiscal year 1961 congressional justification	$7,540,000

[1] Not included in fiscal year 1960 congressional justifications.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
East unit pumping plant, substation, and related facilities	$2,468,000	$106,700	$217,375	$1,511,900	$632,025
East unit lateral system	2,053,000	85,300	125,000	432,000	1,410,700
Howard Flat unit	1,478,000	24,000	8,000	85,000	1,361,000
Brays Landing unit	1,688,000	37,000	15,000	3,000	1,633,000
Permanent operating facilities	119,000	4,210	1,000	16,100	97,690
Service facilities, depreciation and Salvage			7,000	5,000	−12,000
Consolidated expenditures and credits	−256,000	−257,210	−9,000	−3,000	3,210
Total expenditures	7,540,000		364,375	2,050,000	5,125,625
Undelivered orders			50,000	−50,000	
Total obligations	7,540,000		414,375	2,000,000	5,125,625
Method of financing:					
Appropriation fiscal year 1960			414,375		
Appropriations required				2,000,000	5,125,625

Mr. KIRWAN. This project was started by the Congress last year. Please describe it and tell us how much has been obligated to date?

Mr. DOMINY. We had an appropriation for fiscal year 1960 of $414,375.

Mr. KIRWAN. Has the court confirmed the payment project as yet?

Mr. BENNETT. That was confirmed January 21 of this year.

BPA POWER REVENUES FOR IRRIGATION

Mr. KIRWAN. We have had considerable testimony that Bonneville Power rates will have to be increased sooner or later to cover the costs of new higher cost generating facilities coming into use.

Under these circumstances why should power revenues be siphoned off to subsidize irrigation to the extent of $3,724,000 on this project?

Mr. BENNETT. Mr. Chairman, there is actually no relationship between current power rates of the Bonneville Power Administration and the use of the so-called net revenues for irrigation assistance.

This is so because the irrigation assistance is not applied until after there is payout of the power facilities.

FRUIT PRODUCTION

Mr. JENSEN. Are we so short of apples and cherries that you feel the taxpayers of the Nation should put up the money to construct a project such as this—at a cost of $1,223 per acre?

Mr. DOMINY. One of the major objectives of the Greater Wenatchee division is to maintain the existing economy in addition to providing for further develop-

ment. Rocky Reach Dam, now under construction, and Wells Dam which is licensed for development, along with highway construction and urban expansion will eliminate about 3,500 acres of bearing orchards. The economy of the Wenatchee area is geared largely to fruit production and the removal of 3,500 acres could have serious impact on the farm labor situation and on the packing and cold storage industries. Thus, over one-half of the project is required for replacement of existing values.

The Greater Wenatchee division will provide 6,700 acres that can be used for fruit production. It is expected that some time will elapse before the trees are planted on the total acreage and attain bearing age. Before this time is elapsed we believe there will be a real need for the additional fruit production that can come from these lands, as at the present time planting of new trees in the Eastern and Midwestern States is not keeping pace with population growth.

BENEFIT-COST RATIO

Mr. JENSEN. If the benefit-cost ratio is so good, why cannot the landowners construct their own project? And why is it necessary to pay off part of the cost through assignment of power revenues of an unrelated project?

Mr. DOMINY. Relatively high benefit values such as those derived from the Greater Wenatchee division do not mean that the ability to repay construction costs is equally high. The benefit determinations are designed to measure the increased return to the farmer, in this case $751,600 annually, and his family for their labor and the increased profit, estimated at $1,650,800 annually, to those who package, process, store, and transport the increased agricultural production. From the increased return to the operator, it is necessary to deduct allowances for family living, return on increased farm investment, and annual costs of operation and maintenance to arrive at the amount which can be contributed to the retirement of the construction investment. In this case, due to the annual cost of operating high lift pumps, the amount remaining to defray construction costs is only $89,380 or about 4 percent of total benefits.

Repayment of construction costs above those which can be returned by the landowners will be accomplished with surplus power revenues from the Chief Joseph Dam project constructed by the Corps of Engineers, Department of the Army. The basis in law for use of these revenues is found in the act of May 5, 1958, which authorized the Greater Wenatchee division and in the act of July 17, 1952, which provides in part "that the Secretary of the Interior is authorized to proceed in relation to the Chief Joseph Dam project * * * to make a study and report to Congress on means of providing financial and other assistance in the reclamation of arid lands in the general vicinity of the project." Thus it would appear that these enactments recognize a relationship between the Chief Joseph Dam project and the Greater Wenatchee division that is similar to other basin-wide developments being constructed under reclamation law. The concept of aid to irrigation from surplus power revenues as traditionally applied has never depended, necessarily, on a specific hydraulic interrelationship between the power project and the irrigation unit.

LANDOWNERS CONTRIBUTIONS

Mr. JENSEN. On the basis of 3 percent compound interest on the total project cost over the 60-year repayment period, and the writeoff to power revenue, what is the total per-acre contribution to the landowners involved?

Mr. DOMINY. On the basis of the authorized plan for repayment of the Greater Wenatchee division, the landowners will return about $700 per acre to the Treasury during the repayment period. Under the stated theoretical plan for repayment assuming that all project costs, including the allocation to fish and wildlife, were reimbursable at 3 percent compound interest over a 60-year period, the return to the Treasury would be about $2,700 per acre. Thus a theoretical contribution of about $2,000 per acre to the landowner under the authorized plan is computed.

ACREAGE ALLOWANCES

Mr. JENSEN. What is acreage in the maximum individual, family, or other ownership on this project, and what would be the maximum bonanza to such owner?

Mr. DOMINY. There are six landownerships in excess of 320 acres involving a gross acreage of 2,300 acres. The largest single ownership is 615 acres owned

by the city of Wenatchee. Estimated contribution of power revenues of $2,000 per acre would result in a total contribution of $640,000 to each maximum ownership service of 320 acres as provided under reclamation law.

TOTAL COST OF AUTHORIZATION

Mr. JENSEN. What was the estimated cost of this project at time of authorization?

Mr. DOMINY. The total estimated cost of the Greater Wenatchee division at the time of authorization was $10,280,000. This amount related to a four unit development. Only three of the four units, however, are being proposed for construction at this time. The estimated cost of these three units at the time of authorization was $7,931,000.

COLUMBIA BASIN PROJECT, WASHINGTON

Mr. KIRWAN. Columbia Basin project, $6,100,000.
Insert pages 223 to 231.
(The matter referred to follows:)

PF-65
(7-55)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Columbia Basin - In Central Washington, approximately 95 miles west of Spokane, Washington

AUTHORIZATION: Rivers and Harbors Act of August 30, 1935 and subsequent Acts | B/C RATIO 4.1 | Date August 1959

LAND CERTIFICATION: By Secretary, August 11, 1952 | DEFINITE PLAN REPORT: Summary Planning Report was submitted in March 1952 and adopted by the Commissioner in lieu of DPR.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 924,789,560	Appropriations to June 30, 1959	$ 538,576,513
Net Property and Other Transfers	-973,000	Appropriations for F. Y. 1960	7,427,735
Cash Advances--Non-Federal	313,440	Appropriations to Date	546,004,218
Adjustment 1/	37,501,000	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 19 61	6,100,000
Total to be Allocated	$ 961,631,000	Balance to Complete after F.Y. 1961	$ 372,685,342

ALLOCATIONS 9/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 765,266,000	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$ 744
Power	192,777,000	Amount Repaid by Power4/	958,043,000	Repayment of Investment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water)		By Irrigators	$
Flood & Nav.	2/ 3,100,000			By Power Revenues	) 4/
Other	3/ 488,000	Non - Reimbursable	3,588,000	By M & I Water Users)	
Total	$ 961,631,000	Total	$ 961,631,000		

Payment Capacity per Acre	$ 11.87
Annual Charges:	
O. & M.	$ 7.45
Construction5/	2.12
Drainage 6/	1.38
Total	$ 10.95

STATUS OF REPAYMENT CONTRACT: Three 1945 Repayment Contracts provide for $85 per acre construction repayment. Completion of second phase remaining project of 550,000 acres will depend upon a revised repayment arrangement providing for a greater repayment obligation. Appropriations reported hereon are within the $260,782,180 contract ceiling.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Joint facilities	9,402,000 AF	98	7/	Pasco-Burbank-Ice Harbor pumping units	10,000 HP	99	6-62
Primary irrigation works	6,800cfs	99	1966	Other Irrigation Plant Facilities		98	1970
West Canal Irrigation Area	226,000 Ac	79	1970	Special Dist. Syst for part time units	1,000 Ac	60	1970
East Low Canal Irrigation Area	31,000 Ac	84	1970	Irrig. Facilities (2nd Phase)	550,000 Ac	0	8/
Potholes Irrigation Area	111,000 Ac	83	1970	Power Facilities	1,974,000 kw	100	1955
East High Canal Irrig. Area	(Investigations)	52	6-63	Temporary Camp		60	1946

Acreage Full Supply 1,029,000 Supplemental Supply ..... Total Acres 1,029,000 Power kw 1,974,000

Region	Date	Project and State
1	1-18-60	Columbia Basin Project, Washington

BR-223

[1] Includes full cost of O. & M. financed drains, $36,366,000, and O. & M. financed additions and improvements to power and multipurpose facilities, and minor adjustments, $1,135,000.

[2] Includes tentative allocation of $2,100,000 for enlarged Esquatzel diversion canal.

[3] Represents nonreimbursable expenditures of $174,560 for spillway floodlighting—Grand Coulee Dam, and $313,440 in contributions.

[4] Repayment ceiling under existing 1945 contracts would return $40,715,000 for the 479,000 acres in phase 1. Contracts yet to be developed for the 550,000-acre second-phase development would be expected to return an appreciably larger additional sum.

[5] Represents 40-year repayment of $85 per acre per 1945 contract for the 479,000 acres in phase 1.

[6] Represents an average long-term per acre charge for drainage to be financed through annual O. & M. payments by water users. The annual per acre charge may range from no assessment to about $3 per acre depending on the drainage construction schedule and associated repayment period.

[7] All facilities are complete except the minor work of installing flashboards on Grand Coulee Dam in fiscal year 1961 and work necessary to protect the tailrace slopes and river embankments by grouting the existing riprap. The latter work will be performed at some future date when discharge patterns indicate its necessity.

[8] Dependent upon modification of existing repayment contracts and authorized rate of development.

Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$583,114,000	$765,266,000
Power	192,777,000	192,777,000
Flood and navigation	3,100,000	3,100,000
Other	488,000	488,000
Total to be allocated	779,479,000	961,631,000

Increase in total to be allocated and irrigation is associated with the addition of capacity and facilities for the service of lands in the east high canal area and refinements and corrections in the estimates for other specific irrigation facilities, including the full cost of necessary drainage works.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 2.8.
Benefit-cost ratio based on total benefits and 3 percent interest is 3.6.
Above ratios are approximate pending completion of studies on East High Canal area.

Agricultural production present and future

Dry edible beans, the small grains, alfalfa hay, sugar beets and potatoes utilized 72 percent of the area cropped and produced about 80 percent of the gross crop income in 1959. Until the project matures these five crops plus field corn will be of greatest importance. Interest in legume seed, grass seed, mint, orchard crops and vegetables continues to increase but forage crops and grain production to complement the growing livestock enterprises loom large in future land use.

JUSTIFICATION

Description.—This project is located in central Washington. It will furnish water for the irrigation of approximately 1,029,000 acres of new land and generate 1,974,000 kilowatts of electric energy. All power produced in excess of the needs of the project is delivered to the lines of the Bonneville Power Administration for marketing and distribution. Flood-control and navigation benefits are derived by regulation of the Columbia River at Grand Coulee Dam. All power facilities and the completed irrigation facilities are operated and maintained by the Bureau of Reclamation with appropriated funds. Commencing January 1, 1960, operation and maintenance of irrigation block 1 is being financed from advanced funds.

Appropriation title.—Construction and Rehabilitation.

Work proposed, fiscal year 1961

Joint facilities, $47,000.—This amount provides for the purchase of flashboards for the crest of Grand Coulee Dam.

Primary irrigation works, $30,000.—The program provides for minor deferred and supplemental construction associated with the main canal system.

West canal irrigation area, $3,378,000.—These funds will provide for the completion of construction of lateral systems to serve blocks 80 and 88, and the Frenchman Hills pumping plant (block 80). A contract for the construction of two operators' quarters in block 80 is scheduled for award late in the year. Deferred and supplemental construction, priming, and testing of newly constructed irrigation facilities, and drainage construction financed with O. & M. funds will continue.

East low canal irrigation area, $910,000.—Deferred and supplemental construction work will be continued in this area as will the O. & M. financed drainage program.

Potholes irrigation area, $2,117,000.—The program provides for purchase of rights-of-way for the Moses Lake control works, enlargement of two additional reaches of the Potholes Canal, and for the lateral distribution system for block 23. Deferred and supplemental work and drainage financed from O. & M. funds will be continued. Priming and testing will continue on newly constructed irrigation facilities and preconstruction engineering work is to be continued on the Wahluke slope.

East high canal irrigation area, $450,000.—System studies, estimates and other preconstruction engineering and investigation work in connection with the plan for development of this irrigation area will be continued.

Pasco-Burbank—Ice Harbor pumping units (Pasco-Burbank pumping units), $5,000.—Minor deferred and supplemental construction work is planned for the Pasco-Burbank units.

Other irrigation plant facilities, $5,000.—Provides for minor improvements to facilities already constructed.

Service facilities, depreciation and salvage, $—235,000.—Provides $110,000 for replacement and addition of motor vehicles and heavy equipment, offset by

the distribution of $345,000 of service facilities purchased in prior years and distributed to project features, or to other activities on a use basis, or to salvage.

Other project costs, $245,000.—This amount provides for continuing the program of settler selection, ownership conformance, providing information to prospective settlers, general project development activities and the extension of the cooperative settler assistance contract with the Washington State University. It also provides for the purchase of settlement land to facilitate the establishment of farm units (amounts received from the sale of settlement land are deposited in the Treasury and are not available for reexpenditure).

Consolidated expenditures and credits, $148,000.—This amount represents the estimated collections from equipment to be salvaged which are deposited in the Treasury and not available for reexpenditure, and other minor adjustments.

Operation and maintenance financed drains—$1,000,000.—This amount represents the deduction for drainage construction work to be financed from O. & M. funds.

Change in total obligations

	Obligations
1960 congressional justification	$785,082,000
1961 congressional justification	925,103,000
Increase	140,021,000

The major portion of the increase $126,402,000, reflects the cost of a plan of pumping plants, canals, and laterals to serve an additional 146,000 acres of high quality land in the east high canal irrigation area. A like number of acres, all submarginal, or which no longer appear feasible to irrigate have been deleted from the project plan. Most of the deleted acres were to be served from existing or still planned canal systems and have a comparatively inexpensive total cost of $7,482,000. Other changes in the total include an increase of $3,465,000 to bring the estimate in line with present prices. An increase of $11,791,000 is due to the availability of new field data and to design modifications on the system to serve the Wahluke slope lands. An increase in the cost of settlement and settler assistance totaled $2,505,000. Cost adjustments, estimates revision and minor charges added a further $3,340,000 to the total.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Joint facilities	$163,187,000	$160,707,021	$3,000	$47,000	$2,429,979
Irrigation facilities (1st phase):					
Primary irrigation works	71,327,532	71,027,532	40,000	30,000	230,000
West canal irrigation area	89,259,011	67,946,011	5,003,000	3,378,000	12,932,000
East low canal irrigation area	63,373,803	53,305,803	775,000	910,000	8,320,000
Potholes irrigation area	73,903,125	60,206,074	2,040,000	2,117,000	9,510,051
East high canal irrigation area	2,392,711	964,711	538,000	450,000	430,000
Pasco-Burbank-Ice Harbor pumping units	3,929,647	3,909,647	10,000	5,000	5,000
Other irrigation plant facilities	400,000	356,180	5,000	5,000	33,820
Special distribution systems-part-time farm units	252,000	151,345			100,655
Irrigation facilities (2d phase)	367,809,171				367,809,171
Power facilities	107,506,000	107,505,605			395
Temporary camp	1,707,300	1,011,000			696,009
Service facilities, depreciation and salvage	−1,707,000	1,113,340	−190,000	−235,000	−2,395,346
Other project costs	17,106,000	9,389,337	245,000	245,000	7,226,663
Consolidated expenditures and credits	973,000	126,310	98,736	148,000	599,954
Operation and maintenance financed drains	−36,366,000		−240,000	−1,000,000	−35,126,000
Total expenditures	925,103,000	537,872,922	8,327,736	6,100,000	372,802,342
Undelivered orders		875,186	−875,186		
Total obligations	925,103,000	538,748,108	7,452,550	6,100,000	372,802,342
Method of financing:					
Appropriation, fiscal year 1960			7,427,705		
Application of prior-year funds			141,845	117,000	117,000
Balance available in subsequent year			−117,000	−117,000	
Appropriation required				6,100,000	372,685,342

Operation and maintenance

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960
Work proposed, fiscal year 1961: Normal operation and maintenance will be continued			
Power field division: The increased program provides $80,000 for a schedule of repairs on outlet works gates in the dam. Other nonrecurring major maintenance requirements are $105,000 for the purchase of and repair parts for main unit cooling coils; $160,000 for rebuilding type E circuit breaker bushings, and $20,000 for uprating circuit breakers in the powerplant. New additions include the purchase of a spare hydraulic coaster gate hoist for $95,000; load and frequency control equipment for $15,000; $10,000 for a reservoir deflection boom, $16,000 for permanent surfacing and doors, and $23,000 for miscellaneous tools and equipment. Replacements of worn vehicles, typewriters, tools, etc., require $31,000	$2,656,000	$3,190,000	+$534,000
Municipal field division: The reduction reflects the sale of Coulee Dam town properties to the residents. The town was incorporated February 26, 1959. Responsibility for all municipal affairs have been assumed by the city in fiscal year 1960	28,000		−28,000
Irrigation division: The program includes $1,000,000 for construction of drainage facilities necessary for the protection of lands to which irrigation service is available. This amount is in excess of the limitation contained in the irrigation repayment contracts on expenditure of regular construction funds for this purpose and is an increase of $760,000 over the current year drainage program. Other increases in the irrigation program provide for added maintenance on the completed carriage and distribution system, for the 1st full year of O. & M. on the 24,741 acres entering the development period in the spring of 1960, for the initial O. & M. on the 20,600 acres of new land which will enter the development period in fiscal year 1961, and for additional general expense in connection with the overall increase in the irrigation program	1,761,000	2,812,000	+1,051,000
Project headquarters: The program provides funds to carry out the added administrative responsibilities associated with the increase in the O. & M. activity	549,896	638,000	+88,104
Total obligations	4,994,896	6,640,000	+1,645,104
Appropriation available and required	4,964,896	6,600,000	+1,635,104
Non-Federal advances	30,000	40,000	+10,000

Project statistics

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
FACILITIES OPERATED BY BUREAU				
Irrigation system:				
Irrigable acreage for service: Irrigation service land full	Acre	386,359	411,100	431,700
Irrigated area [1]	do.[2]	238,312	260,000	285,000
Gross crop value	Dollar [2]	27,302,370	29,900,000	32,000,000
Acreage gross crop value per acre	do.[2]	115	115	112
Storage dams and reservoirs [3]	Number	5	5	5
Canals (excluding wasteways) [4]	Mile	288	292	292
Laterals (excluding wasteways) [4]	do	1,623	1,691	1,709
Deep drains	do	165	198	218
Shallow drains and wasteways	do	547	569	587
Operating roads	do	1,911	1,983	2,001
Power system: [5]				
Annual sales	Kilowatt-hour	10,794,542,000	14,900,000,000	14,900,000,000
Revenues from sale of electrical energy [6]	Dollar	12,912,684	13,100,000	13,100,000
Powerplants	Number	1	1	1
Plant capacity (nameplate capacity)	Kilowatt	1,974,000	1,974,000	1,974,000
Transmission lines:				
Circuit	Miles	16	16	16
Structural	do	15	15	15
Substations	Number	1	1	1
Substations, capacity	Kilovolt-ampere	2,585,000	2,585,000	2,585,000

[1] Includes class 6 and high land cropped and harvested.
[2] Figures on a calendar year basis.
[3] Includes Grand Coulee, North, Dry Falls, Long Lake, and O'Sullivan Dams.
[4] Includes structures which are in service as well as those completed and ready for service.
[5] Data for power system include only the facilities at Grand Coulee Dam.
[6] Excludes rental income and payments by BPA for downstream river regulation benefits.

COST INCREASES

Mr. KIRWAN. Please explain the tremendous increase of $140,021,000 and tell us how far this total cost is above the original authorization. Use the map to show what has been added.

Mr. DOMINY. Well, actually, what we have done here is to index the cost of the entire million-acre project up to today's cost levels which hadn't been done for a long while because we are now only building a portion of the million-acre project—we are capable of serving now about 400,000 acres. The bulk of the remaining area is far in the future insofar as getting irrigation service is concerned. Therefore, we hadn't indexed up the total project cost to the current levels assiduously in recent years. But now since we are studying the possible new location of the East High Canal, and may change the service area——

Mr. KIRWAN. When was the last time you indexed it?

Mr. DOMINY. Previous to this, I——

Mr. BENNETT. We have been indexing right along that part of the work that has been underway.

Mr. DOMINY. But the costs associated with the deferred area—we just hadn't been indexing those up and now this year we have.

Mr. KIRWAN. You have brought it up to date, then, for whole business?

Mr. DOMINY. That is right, sir.

ADDITIONAL ACREAGE—EAST HIGH AREA

Of this increase, $126,402,000 reflects the cost of a plan of pumping plants, canals, and laterals to serve an additional 146,000 acres of high quality land in the East High irrigation area.

Mr. KIRWAN. Have you a map there that is handy?

Mr. STAMM. I have a small map that shows the location. The reason for this change is due to the fact that over the years we have lost acreage under the original plan. We have lost about 140,000 acres, part of which is due to AEC withdrawals on the Wahluke Slope, the Larson Air Force Base, irrigable lands flooded by McNary waters, and by Ice Harbor Dam and reservoirs.

McNary backs water up into this territory. In addition to these lands shown in dark green, we have bypassed certain areas of poorer quality land and as we gain more experience, it looks like those lands should be permanently bypassed.

That land that has been lost in the Wahluke Slope area, and the deferred areas scattered all through here can be totally offset, we believe, by building this East High Canal which shows here. This is the original location of the East High.

It can be built to a higher pump lift, to the highest high level and bring in lands in this general location, that will fully offset the losses that have been incurred here and will permit us to develop a full million acre project.

TOTAL INVESTMENT

Mr. KIRWAN. The first time I went up there to look at a project was when they were constructing the Grand Coulee.

Tell us how much money you have invested in the Columbia River, if you have it in hand there, since they built the Grand Coulee. What have you spent on the Columbia River?

Mr. DOMINY. Appropriations to date for this project are $546,004,218.

Mr. KIRWAN. For the whole Columbia River. That is the appropriations?

Mr. DOMINY. That is just the Bureau of Reclamation's Columbia Basin project.

Mr. KIRWAN. What is the authorization of the whole business?

Mr. DOMINY. Well our present estimate now is $924 million.

Mr. KIRWAN. You have $400 million to go then or thereabouts before you complete what they have authorized you to do. Is that correct?

Mr. DOMINY. That is right, sir.

REPAYMENT

Mr. KIRWAN. Can you tell what has come back into the Treasury of the United States from this project?

Mr. DOMINY. Yes, sir. The repayment will be $958,043,000. The nonreimbursable is only $3,588,000 on this whole project.

Mr. KIRWAN. In other words, you have done a tremendous and a good job.

Mr. DOMINY. Well I think so, sir.

Mr. KIRWAN. Lewis and Clark did the first job, and I think you have done a tremendous job out there, now with the public power and the irrigation.

When I was out there at Grand Coulee if you drove an automobile, all you left was a trail of dust. There were no roads, no nothing.

Mr. DOMINY. It is interesting to note, Mr. Kirwan, that the record shows during the time this was being considered for authorization and construction back in the 1930's, that many responsible people said this was a white elephant, that it could never be constructed, that you couldn't market the power, that irrigation was infeasible, and so on.

Mr. MAGNUSON. And the only customers would be jackrabbits.

Mr. DOMINY. That is right. This is all in the record. As a matter of fact, Grand Coulee Dam played probably as great a part in our winning efforts in the war as any single facility of the Government. It was Grand Coulee power that made aluminum for planes, etc.

(Discussion off the record.)

Mr. DOMINY. We have already paid into the Treasury $165 million as of June 30, 1959.

Mr. KIRWAN. That is very good news, then, that is the stuff you want to get into the record. What your public power is returning to the U.S. Government and at the same time, you are not harming private utilities.

AUTHORIZATION

Are you adding to the project authorization, or is new authorization necessary?

Mr. BENNETT. We have discussed that question many times with our attorneys, Mr. Chairman, and they tell us that the work under the East High line canal is an authorized part of the project.

Mr. KIRWAN. Put an opinion in the record on it.

(The matter referred to follows:)

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington, D.C., March 9, 1960.

Memorandum to: Commissioner of Reclamation.
From: Associate Solicitor, Water and Power.
Subject: Authorization for East High Canal, Columbia Basin project, Washington.

In the course of appropriation hearings you have been asked whether construction of the East High Canal as proposed is a feature of the Columbia Basin project that falls within the existing authorization for the project.

As we have previously indicated to you through informal discussions, we believe it does fall within the existing authorization.

The total acreage contemplated for the project has always been considered to be 1,029,000 acres of irrigable land. It is my understanding that during the course of construction and development of the project, the irrigable acreage under the West, East Low and Potholes Canal has been reduced by some 140,000 acres. This reduction is accounted for by the elimination of 50,000 irrigable acres acquired and utilized by the Atomic Energy Commission and the Larson Air Force Base at Moses Lake; 32,000 irrigable acres lost by reason of the construction of McNary and Ice Harbor Dams, including steep lands in block 32; 58,000 irrigable acres of low quality lands scattered throughout the project which have been bypassed during development of the overall project. I am informed that the construction of East High Canal at the proposed new elevation will bring in additional lands to offset this loss of 140,000 acres of irrigable lands,

thereby maintaining a project of about 1,029,000 irrigable acres, as originally contemplated.

The authorizing legislation for the Columbia Basin project is included in two acts of Congress: namely, the act of August 30, 1935 (49 Stat. 1028, 1039), and the act of March 10, 1943 (57 Stat. 14). The 1935 act authorized Grand Coulee Dam for the general purposes of irrigation, flood control, navigation, and generation of hydraulic power. The 1943 act reauthorizes the project subject to the Reclamation Project Act of 1939 (53 Stat. 1187). Neither the 1935 nor the 1943 act describes the features making up the "Columbia Basin project."

Section 7(b) of the 1939 act authorizes allocation of costs to be made under procedures set forth in section 9 of that act as a predicate to invoking the contracting authority conferred by that act. Pursuant to the allocation authority referred to, the Secretary furnished such report on the Columbia Basin project by letter to Congress dated May 8, 1945, and printed as House Document No. 172 (79th Cong., 1st sess.). This report accomplished administratively a general delineation of the project's features.

Among other words comprising the project, this report refers to the East High Canal as diverting water from the forebay side of the Long Lake powerplant and serving the higher east side lands north of the Washtucna Coulee, comprising about 215,000 acres. The report also states (p. 4) as follows with respect to the nature of the works embraced by the project:

"The works comprising the project as above described may have to be modified, added to, or parts thereof omitted as the necessity for such changes develops in the course of construction. Such changes as may be found to be necessary are expected, however, to be within the framework above described. They would not be of such character as to result in any substantial increase in the area of lands to be served, nor otherwise to result in a substantial change in the ultimate objectives of the project."

In light of the situation referred to in the third paragraph of this memorandum, I believe there can be no serious doubt that construction of the East High Canal now under investigation falls within the framework of the project as reported and does not result in a substantial increase in the area to be served.

EDWARD W. FISHER,
Associate Solicitor, Water and Power.

DISTRIBUTION OF 1961 FUNDS

Mr. KIRWAN. Begin with the map showing us how the 1961 funds will be used.

Mr. DOMINY. $47,000 of it provides for the purchase and installation of flash boards for the spillway gates and crests of Grand Coulee Dam, itself. This is for the purpose of increasing the use of this dam for storage.

There is $47,000 for that, there is $30,000 for minor, deferred, and supplemental construction associated with the main canal system. That is for work that has shown up under operation to need some remedial construction.

There is $3,378,000 in the west canal irrigation area. These funds will provide for the completion of construction of lateral systems to serve blocks 80 and 88 including the Frenchman Hills pumping plant in block 80.

The east low canal irrigation area, we have $910,000 for supplemental construction work to be continued in this area as well as the O. & M. financed drainage program.

Then the Potholes irrigation area, $2,117,000. The program provides for purchase of rights-of-way for the Moses Lake control works, enlargement of two additional reaches of the Potholes Canal, and for the lateral distribution system for block 23.

Then in the east high irrigation area, $450,000 for studies and estimates and other preconstruction engineering and investigative work, in connection with the plan for development of this irrigation area.

Then we have a small item of $5,000 in the Pasco-Burbank ice harbor pump area for minor deferred and supplemental construction work.

AMENDATORY REPAYMENT CONTRACTS

Mr. KIRWAN. You have apparently not succeeded in getting amended repayment contracts to take care of drainage costs. Please review this problem and give us the present status of your negotiations.

Mr. DOMINY. As I have reported to this committee over the past several years, we have been attempting, starting clear back in 1953, to negotiate amendatory repayment contracts with the three Columbia basin irrigation districts. We recognized as long ago as 1953 that the present contracts under which we operate no longer fit present-day circumstances. The contracts were written in 1945 and they were based on 1940 price estimates. The contracts contain two limitations that inevitably were going to plague us under the inflated costs under which we are operating today.

The first of these is a limitation of not more than $281 million which could be expended under that contract for primary irrigation works. That was the estimate based on 1940 prices to build the irrigation system for the million-acre project.

Now, we are almost up to that figure. We will reach it in about 2 more years.

The other limitation is even more critical and more timely as it affects our work and that is a limitation of $8,176,000 for project drainage facilities. And we have reached that limit. Under the contract once the drainage limit is reached, our authority to continue to build necessary drains is contingent upon making the assessment currently as an annual operation and maintenance charge.

Now we recognize that this is an onerous charge, that this is a charge that the farm settler reasonably can't be expected to pay during the early years of developing a project. When they go out on that raw land and have to level the fields and build their homes and buildings and get machinery and equipment—and they have very heavy financial obligations, particularly in the early years with a lot of interest to pay, and small returns, while the fertility is being built up, and so forth.

So we have wanted to avoid leveling these charges by having an amendatory repayment contract agreed to and submitted to Congress and be approved.

We finally did reach agreement with the three irrigation district boards of directors, the elected officials of the districts, on a form of contract which the Bureau of Reclamation and the Department of the Interior were prepared to recommend to Congress, and the irrigation districts decided to put it to a vote. They put it to a vote in the east district last July.

Now, I thought this was poor timing. I urged them not to try to vote on it in the middle of a farming season and I didn't think they had explained it sufficiently to the farmers. My fears proved to be justified. The farmers voted it down.

So without having definite progress toward getting a contract, we have no alternative except to go ahead and build some drains that are badly needed to keep good land from becoming waterlogged. In

some areas where they had been farming the longest, the water levels are reaching critical stages and are encroaching upon the root zone area and unless the drains are built and built promptly, we would be putting good land out of production and running a risk of seriously impairing that good land.

Mr. CANNON. Your water table is rising?

Mr. DOMINY. Yes, sir; to a level that was critical in some areas.

So we did, you will recall, ask for money last year in the 1960 budget to build some drains as part of O. & M. And pursuant to the existing contracts of 1945 we made an assessment of $1.65 an acre against every acre that is being irrigated on the project, to pay those drainage costs. This drainage assessment is in addition to their regular O. & M. assessment. This, of course, has been a very unpopular levy. There has been a great deal of concern expressed on the project about their ability to pay it.

Now the districts failed to schedule this drainage assessment as part of the current year's O. & M. levy. But they do have reserve funds which they have built up over a period of years that they can draw upon and meet this charge this year if they desire.

Now if they don't pay it, of course, I have no authority under reclamation law to deliver water this year.

Now in these circumstances, I went out personally and met with the farmers, themselves, in their annual meeting in each district, on the 10th, 11th, and 12th of February. I think as a result of those meetings that we have a full understanding on the part of the project and the water users that I have no alternative except to live under the authority of the existing contract until it is amended by act of Congress.

And I think they also have a very clear understanding that there are two ways we can go about accomplishing that. The one which we have always used heretofore is to get a negotiated contract, which is acceptable not only to the irrigation districts and to the farmers, but to the Department of the Interior and the Commissioner of Reclamation and recommend that to Congress for action and get a bill passed approving such negotiated contract.

NEW CONTRACTS

Now we have been unable to do that in this case, in time to have a negotiated contract voted on by the water users and presented during this session of Congress. Accordingly, I have urged that since they want terms differing from those which I feel in justice to reclamation law and administrative practice over the years that I can support when considering all the other 40-odd amendatory contracts which we have presented to Congress, and the Congress has accepted since the passage of the Reclamation Project Act of 1939—since they are insisting on terms more liberal than those which I feel able to recommend—I have urged them to get their proposed terms introduced in Congress and have hearings before the legislative committees so that we can get from Congress a directive as to the terms of the new contracts.

The Department will be able to report its views and the water users can report their views and these legislative committees who have heard all of the other amendatory contracts explained and discussed,

will certainly be able to arrive at a decision as to what they are prepared to recommend to the Congress in this matter.

Now the bill has been introduced. Congresswoman May has introduced a bill embodying the terms which the irrigation officials would like to have embraced in their new contract.

Mr. KIRWAN. It has been done as you say and a bill introduced to amend——

Mr. DOMINY. To give us instruction. The bill, in effect, would give the Secretary of the Interior instructions and authority to amend the contract along specific lines.

If that bill can be heard and we get an answer on that this session, we have every opportunity of getting a new contract so that we will be operating under the revised contract for next year—calendar 1961.

Mr. KIRWAN. It looks like you have a busy schedule, Mr. Magnuson.

Mr. MAGNUSON. That is right.

IRRIGATION FACILITIES LIMITATION

Mr. KIRWAN. You state that the funds requested for 1961 for irrigation facilities are within the total of $280 million?

Mr. DOMINY. Yes, sir.

Mr. KIRWAN. Now contracted for repayment; but have you actually put under irrigation with appropriations to date all the lands which are necessary, or anticipated as necessary to meet this repayment obligation? If you have not, the repayment can't be met anyway, and the project should be stopped now; is that correct?

Mr. DOMINY. We certainly think the Columbia Basin project is one of the very fine examples of the value of reclamation to the West and to the Nation. We feel confident that contract terms acceptable to the Congress with appropriate provisions and requirements when considered in the light of other contracts with other irrigation districts all over the West will be available and negotiated soon.

Mr. KIRWAN. Now let me ask you this question: What failures did you ever have in reclamation—whether reservoir, or dam?

Mr. DOMINY. We have had no major failures on the part of any of our structures, sir.

TOTAL INVESTMENT IN RECLAMATION PROJECTS

Mr. KIRWAN. Can you tell us how much money has been invested in reclamation over the land. It must be $3 or $3½ billion.

Mr. DOMINY. We have at the present roughly $3½ billion invested.

Mr. KIRWAN. And you haven't had a major failure in the $3½ billion?

Mr. DOMINY. We have have a few small projects like the Hondo in New Mexico and the Garden City project in Kansas that did not turn out well.

Mr. KIRWAN. A few minor ones; but a major failure in $3½ billion, you haven't had one?

Mr. DOMINY. No, sir.

Mr. KIRWAN. Now here is another thing: The man who put reclamation in was Theodore Roosevelt, is that correct?

Mr. DOMINY. He was the President at the time the Reclamation Act was passed in 1902.

Mr. KIRWAN. From his time up until Franklin Roosevelt's, all that was spent on reclamation in this country was $300 million?

Mr. DOMINY. Yes, sir.

Mr. KIRWAN. In 30 years.

Mr. CANNON. Teddy rendered a great service to the country.

Mr. KIRWAN. But all the money they spent in 30 years on reclamation was $300 million. From the time it went in, in 1902, until 1933, there was only $300 million spent. From 1933 up until 1942, you ran it up to a billion dollars.

Mr. DOMINY. The total up to this date is about $3½ billion.

Mr. GOLZE. $3,776 million, exactly.

NEW AND CONTINUING CONTRACTS IN 1961

Mr. RABAUT. How much of the 1961 funds are continuing contracts and how much for new contracts in fiscal year 1961?

(The matter referred to follows:)

Of the $6,100,000 fiscal year 1961 appropriation request, $1,091,000 is programed for new contracts and the remainder is for work underway.

Mr. RABAUT. Mr. Magnuson, any questions?

REPAYMENT CONTRACTS

Mr. MAGNUSON. Do the existing contracts call for repayment of $85 an acre?

Mr. DOMINY. On an average; yes. It is adjusted farm by farm, on a productivity factor.

Mr. MAGNUSON. What was the amount proposed by the new contract which was turned down by the districts, $125?

Mr. DOMINY. The contract which they turned down called for a repayment over a 45-year period of an average of $125 an acre but had in it a drainage limitation figure similar to the drainage limitation that is in the present contract, except indexed up to our present-day estimates.

Mr. MAGNUSON. And that was an increase from $8 to $38 million?

Mr. DOMINY. Forty-four and a half, I think, actually.

Mr. MAGNUSON. Would the proposed increase in repayment cover that $36 million increase in drainage, all of it?

Mr. DOMINY. Yes, sir.

Mr. STAMM. A little more, actually.

Mr. DOMINY. Bear in mind that, under the existing contract, if the required drainage is built, they are still obligated to pay it, but they are obligated to pay it as built.

So instead of having it spread over 45 years, they would have to pay it under existing contract in about 20 years, which is the period of time during which the drains would be completed. That is why we recognize that the existing contract is unworkable. It places the burden on the farmers in the early years of project and farm development when they can least afford to meet it.

Mr. MAGNUSON. There is some legislation pending in the other body, isn't there, that affects this situation?

Mr. DOMINY. Yes; there has been a resolution introduced in both the Senate and the House which would, if enacted, give temporary relief to this drainage assessment which has been levied in accordance with the requirements of the existing contract. But it wouldn't resolve the problem and give us the basis for the new contract.

Mr. MAGNUSON. Will you describe that resolution?

Mr. DOMINY. Yes, sir.

The resolution that was put in by Senators Magnuson and Jackson in the Senate would have the effect of permitting us to deliver water currently even though the district did not pay the drainage assessment which has been levied. In other words, it would be a temporary measure to relieve them of paying a charge that had to be levied under the existing contract.

Mr. MAGNUSON. Isn't there a 2-year time element in there?

Mr. DOMINY. For both 1960 and 1961; that is right, sir.

Mr. CANNON. Eventually they would be liable?

Mr. MAGNUSON. It depends on the contract, does it not?

Mr. DOMINY. The resolution of the Senate is silent on that point, and our report on the resolution will comment that it would, in our judgment, make the drainage assessment nonreimbursable in effect, unless the resolution were more explicit and covered that eventuality.

Mr. MAGNUSON. In effect, it would impose a 2-year moratorium requirement on you to shut off water if the assessment is not paid?

USE OF O. & M. FUNDS FOR DRAINAGE

Mr. DOMINY. In effect, the resolution would permit me to spend O. & M. money for drains and yet relieve me of the requirement to shut down the project in case the districts didn't pay the assessment; yes, sir.

Mr. MAGNUSON. Is this $1.65 assessment a continuing charge?

What period of work does that cover?

Mr. DOMINY. The $1.65 assessment covers only the drainage work that we are doing currently. It would not cover the drainage work that we will be doing next year. We have money in this fiscal year 1961 budget for drains as part of operation and maintenance, and we will be making another levy under the existing contract for their next irrigation season in the amount of approximately $2.50 an acre. We are spending more money outside of the drainage limitation in fiscal 1961 than we did in fiscal 1960, so the assessment would be increased.

IRRIGATION LIMITATION

Mr. MAGNUSON. Now, you have a $281 million limitation on irrigation work?

Mr. DOMINY. Yes, sir.

Mr. MAGNUSON. And you are pushing that limitation?

Mr. DOMINY. Yes, sir.

We are spending $6 million this year in this budget, and that leaves us about $14 million under the $281 million limitation.

Mr. MAGNUSON. So in about 2 years it will be necessary for the Congress to increase the authorization if this project is to continue, if this work is to continue?

Mr. DOMINY. It is not an authorization limitation, it is a contract limitation. The 1945 contracts with the irrigation districts were written in accordance with the Columbia Basin Project Act and wouldn't necessarily have had these limitations written into it but it was and, therefore, it becomes part of the limitations on our operation. Until those contracts are amended, with a realistic document that fits today's circumstances, prices, and costs, we have to live with the outdated contract.

Mr. MAGNUSON. Is any congressional action required?

CONTRACT RENEGOTIATION

Mr. DOMINY. Yes, sir. The Secretary of the Interior under section 7 of the Reclamation Project Act, is authorized to renegotiate contracts where he finds the existing one is beyond the financial ability of the project lands, and so forth, but he can't execute the renegotiated contract without approval of Congress by special act.

Mr. MAGNUSON. I just wanted to emphasize what Mr. Kirwin brought out, on the cost of this whole gigantic project. That all but $3 million will eventually be repaid to the Treasury.

I think that is all, Mr. Chairman.

Mr. RABAUT. I want to ask one more question on that:

How much is in the 1961 budget for drainage under the O. & M., the operation and maintenance?

Mr. STAMM. $1 million.

PERSONNEL ON PROJECT

Mr. JENSEN. Now that you are nearing the end of construction on present project lands, will you reduce the personnel involved? If not, why?

Mr. DOMINY. The construction staff on the Columbia Basin project will continue to be adjusted to fit the work program. A reduction of about 26 percent of the positions assigned to construction activities was effected during the calendar year 1959. Further reductions will occur as the program declines.

The Bureau has a continuing program which provides for periodic examinations of organization and manpower requirements of regional offices and major projects. A review will be made of the manpower requirements of the Columbia Basin project before June 30, 1960, to insure that they are consistent with the current workload.

EAST HIGH CANAL

Mr. JENSEN. Last year you told us that you had no assurance that the East High Canal area landowners would agree to irrigate the land. Do you have any more assurance this year than you did last year?

Mr. DOMINY. As previously mentioned, assurances that the landowners desire to come into the Columbia Basin project will not be forthcoming until the Bureau can provide the landowners with certain basic information. To hold up funds for the investigations which would provide this information would mean a complete suspension of further progress on the East High Canal area. The investigations that are being made are for a reconnaissance grade report. No specifications or detailed construction designs are being prepared. These further steps will not be undertaken until definite plans and commitments have materialized.

Mr. JENSEN. Last year the question was raised as to the justification of spending money on an investigation of the East High Canal area until some definite assurance could be obtained that the area wants to be irrigated. You are asking for $450,000 to continue such investigation in fiscal year 1961. Will you furnish for the record a complete and detailed description of all the work being done under this item in fiscal year 1960 and that expected to be done in fiscal year 1961?

Mr. DOMINY. The work being carried on under the investigations of the East High Canal area involves the following:

1. Completion of a reconnaissance-grade study report.
2. Topographic mapping by aerial contract.
3. Land classification of the new area.
4. Estimating costs of the basic project (without East High Canal area) for incremental analysis studies.
5. Determining the limits of potentially irrigable lands in the East High Canal area suitable for study.
6. Studying potential drainage problems and drainage costs in the new area.

When these studies of the East High area have progressed sufficiently we will proceed with layout of canals, design of structures, and estimate of costs to produce a feasibility grade report.

Results of this study are desired at an early date to—

1. Determine the extent of the development required on the East High Canal irrigation area to replace lands bypassed for economic reasons or lost to military and atomic installations.
2. Determine the ultimate capacity and number of units for Bacon siphon and tunnel and the time these units will be required.
3. Determine the anticipated return flow into Potholes Reservoir and prepare an operational plan for the reservoir.
4. Determine the additional (if any) right-of-way requirements at Moses Lake.
5. Prepare a firm operational plan for the equalizing reservoir (Banks Lake), and determine the timing for installation of additional units in the Grand Coulee pumping plant.

Mr. JENSEN. I have an idea you are making detailed surveys, economic studies, engineer designs and specifications that are not justified until you have some definite commitment that the landowners involved desire to come into the Columbia Basin project. Why should we not hold up funds for any further investigation of this item until such assurance can be obtained?

Mr. DOMINY. The Bureau does not have a commitment from the East High Canal area landowners that they will participate in irrigation development of these lands because we have not had the information to give them which would enable them to make a decision. The farmers will want to know from us how much and where the irrigable land is; what and how well it will produce; how much their charges will be and what profits they can expect. These are the necessary prerequisites to an informed decision and when our investigations are complete we will be able to furnish them with these data.

Mr. JENSEN. What is the estimated cost of supplying the 146,000 acres of additional high quality land in the East High Canal area mentioned on BR–227?

Mr. DOMINY. Based on very preliminary data the estimated additional cost of serving the 146,000 acres of high quality land in the East High Canal irrigation area will be about $126,402,000. The investigations underway will provide the data which are necessary to firm up this estimate.

Mr. JENSEN. You have made drastic changes in the construction program, breakdown on page BR–228 in comparison with that shown on page 339 of the fiscal year 1960 hearings. Will you furnish for the record a detailed reconciliation of these two programs?

Mr. DOMINY. Yes, sir.

(The information requested is as follows:)

As advised in the testimony presented a year ago in the House hearings on page 341 and on page 345, the Columbia basin project construction program for fiscal year 1960 depended on the outcome of the repayment contract negotiations. The current standstill in the negotiations left no practicable alternative but to adjust the program so that, when the construction limitation of $280,782,180 (for works directly assigned to irrigation) becomes operative, service will have been provided to the maximum possible acreage with a minimum of unused or uncompleted facilities. This entailed a shift in emphasis from the Wahluke slope of the Potholes Canal irrigation area to the Royal slope of the west canal irrigation area. Development under this program will best utilize presently available funds together with those requested for fiscal year 1961 in the attainment of a maximum terminal development of 479,000 acres under the irrigation construction ceiling.

The changes by program items are explained in the following table:

Fiscal year 1960 program

Program item	Presented in fiscal year 1960 hearings	Presented in fiscal year 1961 budget	Major program changes
Joint facilities	0	$3,000	Design costs on flash boards for Grand Coulee Dam.
Primary irrigation works	$60,000	40,000	Engineering on block 90 and on other features of second phase has been deferred.
West canal irrigation area	2,898,000	5,003,000	Provides for development of block 80, and Frenchman Hills pump plant, a more favorable construction period for block 88, and for larger earnings on blocks 82 and 83 than had been anticipated. Engineering on block 91 deferred indefinitely. Engineering on blocks 81 and 84 delayed to 1964.
East low canal irrigation area	995,000	775,000	Engineering and construction on ice harbor pump plant and engineering studies on areas and features of lower end of east low canal deferred. (Future programs for ice harbor pump plant will be included in second phase development of Pasco-Burbank ice harbor pumping plants.)
Potholes irrigation area	3,362,000	2,040,000	Construction of blocks 21 and 48 and radar pump plant deferred. Offset by increase in earnings on contracts in force, and for engineering on block 23. Engineering on block 17 deferred indefinitely.
East high canal irrigation area	600,000	538,000	Decrease represents delays in obtaining topography maps from aerial mapping contractor.
Pasco-Burbank ice harbor pumping units (now includes ice harbor pumping units formerly a part of east low canal irrigation area totals).	5,000	10,000	Includes cleanup engineering on blocks 33 and 34 of ice harbor units. (Construction indefinitely deferred.)
Other irrigation plant facilities	5,000	5,000	
Special distribution systems—part-time farm units.			
Irrigation facilities (second phase; includes development which is dependent on amended repayment contracts).			
Power facilities			
Temporary camp			
Service facilities depreciation and salvage.	−145,000	−190,000	
Other project costs	−255,000	245,000	
Settlement and settler assistance.	(140,000)	(140,000)	
Settlement land purchase (previously includec resale program).	(−395,000)	(105,000)	Revenues from settlement land resale program which are not available for expenditure were eliminated from construction program.
Consolidated expenditures and credits (includes investigations and transfers, credits and other expenditures previously programed separately).	525,000	98,736	This item previously included the offsetting entry for settlement land revenues. The item has been eliminated as explained above.
Operation and maintenance financed drains.	0	−240,000	Represents drainage system included in construction program to be financed from O. & M. funds.
Undelivered orders	−50,000	−875,186	Represents increase in amount of contractors earnings which were reserved but unearned on June 30, 1959.
Total	8,000,000	7,452,550	Decrease reflects 2½ percent reduction effected in fiscal year 1960 Appropriation Act and slippage.

SECOND PHASE IRRIGATION FACILITIES

Mr. JENSEN. And will you show for the record in some detail the various items and estimated costs thereof covered by the very precise estimate of $367,809,177 for the so-called second phase irrigation facilities?

Mr. DOMINY. We will be glad to do that, Mr. Jensen.

(The information requested follows:)

The following table lists the program items and the estimated cost of the facilities which make up the total of the second phase development.

Program item	*Estimated cost*
Primary irrigation works	$35,598,468
West canal irrigation area	6,877,989
East low canal irrigation area	43,153,197
Potholes irrigation area	35,021,875
East high canal irrigation area	236,797,289
Pasco-Burbank-Ice Harbor pumping units	9,612,353
Special distribution systems for part-time farm units	748,000
Total	367,809,171

The estimated costs for the primary irrigation works and the east high canal irrigation area includes $126,402,000 for the system of pumping plants, canals, laterals and for additional capacity in the main canal and the second bore of the Bacon tunnel and siphon to increase the acreage served from the east high canal from 193,000 acres to 339,000 acres.

Drainage and Minor Construction

Mr. Rabaut. Now drainage and minor construction, $927,120. Insert pages 232 through 234.

(The pages above referred to are as follows:)

Construction and Rehabilitation—Drainage and Minor Construction Program

Allotment, fiscal year 1960	$2,821,511
Application of prior year funds	2,239,424
Balance available in subsequent years	−92,878
Initial underfinancing	639,408
Total obligations, fiscal year 1960	5,607,465
Allotment, fiscal year 1961	921,120
Prior year balance available	92,878
Balance available in subsequent years	−86,878
Total obligations, fiscal year 1961	927,120

Description.—The drainage and minor construction program consists of projects on which major construction is completed except for facilities which are temporarily deferred, and relatively small amounts of funds are being requested in the budget year for drainage work, minor repair or replacement work, miscellaneous finishing activities, preconstruction on temporarily deferred facilities, investigations for settlement of claims, and work on projects with minor programs proposed in the budget year.

Work proposed, fiscal year 1961.—The fiscal year 1961 program involves construction on six projects, investigations work on one project in the preparation for defense of pending lawsuits, review of drainage plans for the settlers assistance activity on another, and water supply and water right contract studies on another. One of these projects involving construction is scheduled for completion in the budget year. Also programed is continuation of as-built drawings and technical records.

All-American canal system, California, $6,000.—The program provides for continued review of Coachella Valley County Water District drainage plans and for postentry activity in connection with completion of the Coachella division public land settlement program.

Buffalo Rapids project, Montana, $40,000.—The program provides for continuing drainage construction on both the first and second divisions.

Michaud Flats, Idaho, $46,000.—For continued drainage construction.

Milk River project, Fresno Dam and Reservoir, Mont., $21,000.—Data collected as a part of various prior year project water supply and water right studies will be analyzed and hydrologic and other work completed with the objective of recommending remedial action.

Parker-Davis, Ariz., Calif., Nev., $325,000.—For substantial completion of rebuilding circuit breakers in the Phoenix and Mesa substations and for initial designs and issuance of specifications for a 69-kilovolt transformer for the Davis Dam 69-kilovolt switchyard.

Rio Grande, Elephant Butte power, New Mexico, $26,120.—These funds will be used to obtain engineering and technical data, for preparation of analyses, reports, charts, and exhibits and render advice and consultation and serve as witness as required by Department of Justice in defense of the *A.T. & S.F. Ry. Co.* v. *U.S.* suit and possible other suits as a result of Private Law 767, 84th Congress, approved July 14, 1956. The suits are for compensation for the taking of or for damage to real or personal property in the flooding of lands in the Rio Grande Valley near San Marcial, N. Mex., in 1929, which flooding allegedly resulted from construction of Elephant Butte Dam.

Riverton, Wyo., $204,000.—Construction work will be continued on project drains.

Shoshone, Wyo., $164,000.—The program provides for the continuation of drainage work on Heart Mountain division and completion of modification to the Buffalo Bill Dam and Reservoir.

Technical records and as-built drawings, $30,000.—The program provides for preparation of technical records of design and construction and as-built drawings for purposes of permanent records on completed works.

Yakima, Roza division, Washington, $65,000.—For completing installation of trash removal screens at Roza powerplant intake and for continued drainage construction.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Projects with fiscal year 1961 program:					
All-American canal system, California	$70,962,363	$64,417,433	$6,000	$6,000	$6,532,930
Buffalo Rapids, Mont	4,601,485	4,387,485	----------	40,000	174,000
Michaud Flats, Idaho	4,670,000	3,861,653	247,927	46,000	514,420
Milk River, Fresno Dam, Mont	2,066,317	2,006,317	39,000	21,000	----------
Parker-Davis, Ariz., Calif., Nev	138,755,158	137,522,818	392,340	325,000	515,000
Rio Grande, Elephante Butte power, New Nexico, Texas	15,912,792	15,842,797	43,875	26,120	----------
Riverton, Wyo	28,713,795	22,024,340	278,455	204,000	6,207,000
Shoshone, Wyo	24,404,781	23,186,206	172,575	164,000	882,000
Technical records and as-built drawings	145,387	71,137	29,250	30,000	15,000
Yakima, Roza division, Washington	21,448,000	20,879,184	334,165	65,000	169,651
Projects inactive in fiscal year 1961:					
Buford-Trenton, N. Dak	921,491	878,697	42,794	----------	----------
Cachuma, Calif	43,553,097	43,498,097	55,000	----------	----------
Carlsbad, Alamogordo Dam and Reservoir, N. Mex	3,204,367	3,179,992	24,375	----------	----------
Chief Joseph Dam, Foster Creek division, Washington	3,369,459	2,396,816	27,793	----------	944,850
Colorado-Big Thompson, Colo	159,154,000	159,144,996	9,004	----------	----------
Crescent Lake Dam—Claim, Oregon	1,500	----------	1,500	----------	----------
Eden, Wyo	8,202,132	7,963,808	166,121	----------	72,203
Eklutna, Alaska	29,659,541	29,658,476	1,065	----------	----------
Little Wood River, Idaho	2,120,878	1,460,432	660,446	----------	----------
Palisades, Idaho, Wyoming	61,679,418	61,263,944	200,474	----------	215,000
Rathdrum Prairie, Hayden Lake unit, Idaho	491,993	475,754	16,239	----------	----------
Santa Maria, Calif	11,383,229	11,250,229	133,000	----------	----------
Solano, Calif	37,864,433	36,800,644	1,063,789	----------	----------
Ventura River, Calif	28,385,769	27,007,989	1,377,780	----------	----------
Wapinitia-Juniper division, Oregon	537,008	477,847	59,161	----------	----------
Yakima, Kennewick division, Washington	14,197,279	13,971,942	225,337	----------	----------
Total obligations	716,405,672	693,629,033	5,607,465	927,120	16,242,054
Method of financing: Appropriation, fiscal year 1960	----------	----------	2,821,511	----------	----------
Application of prior year funds	----------	----------	2,239,424	92,878	86,878
Balance available in subsequent years	----------	----------	−92,878	−86,878	----------
Initial underfinancing	----------	----------	639,408	----------	----------
Appropriation required	----------	----------	----------	921,120	16,155,176

CARRYOVER

Mr. RABAUT. Your carryover in 1960 was estimated at $159,496. Now you show that it was actually $2,239,424. You are estimating only $92,878 carryover into 1961.

On the basis of your previous estimates, it should turn out to be at least $2 million.

What assurances can you give us that any of the $921,120 programed for 1961 will be spent?

Mr. DOMINY. In looking at this list of projects, that are in the drainage and minor completion item for fiscal year 1961—I have every reason to believe that certainly the work on Rio Grande, Elephant Butte, will be undertaken.

The work on project drains is badly needed and I am confident will be undertaken. The drainage work on Heart Mountain is a continuation of the project drains that we always need to perform on newly irrigated projects. And these trash removal screens at Roza powerplant, we are being pressured by the Fish and Wildlife people to get that installed because there is quite a lot of fingerling fish being destroyed at the moment and we want to get that taken care of as rapidly as possible, Mr. Chairman.

Mr. RABAUT. Do you feel you are going to use this $921,000?

Mr. DOMINY. I really think we will, yes, sir. That is a considerable reduction in this item from previous years and the list of projects is different, too. We use this "Drainage and minor construction" as kind of a catchall item for these finishing-up items.

Mr. KIRWAN. You estimated it at $159,000 but the carryover last year was more than $2 million. Now you are estimating $92,000 for carryover into 1961.

Mr. DOMINY. This amount of money was appropriated quite a while ago for a bridge and some drainage on Coachella Valley and we have never used it, but it was earmarked by the committee and it remains in there for that reason.

Mr. RABAUT. Is there any need for it to remain in there?

Mr. DOMINY. We are using it little by little in some ground-water test wells in connection with the Coachella drain. We are obligated to do that by contract.

Mr. RABAUT. What will happen to the bridge?

Mr. DOMINY. That is canceled out of the picture.

Mr. RABAUT. Has there been a shift of the entire fund for the bridge?

Mr. DOMINY. Let me give you a detailed statement of the amount that was appropriated and earmarked here and what we have done with it and what we think is necessary in connection with this item.

Mr. RABAUT. The purpose of giving you the money was for the bridge, was it not?

Mr. DOMINY. And drainage work in the Coachella Valley.

Mr. RABAUT. What percentage of the money was for the bridge?

Mr. DOMINY. I can't recall and I am not sure either that we didn't make a record a year or two ago on this bridge item and that was withdrawn.

I would like to be permitted to give you a detailed statement on it.

Mr. CANNON. Apparently the money was appropriated for one purpose and is now being spent for another.

Mr. DOMINY. That is not the case, sir.

Mr. CANNON. It was appropriated for a bridge and the bridge was not built.

Mr. DOMINY. There were two items. The bridge and the drainage. I belive we made the record on the bridge a year or two ago and that money was withdrawn and the only thing left here is the drainage fund, but I would like to check this out and give you a detailed statement on it.

Mr. RABAUT. It amounts to $2,239,00 for the two things. Is that right, Mr. Dominy?

Mr. DOMINY. I don't believe that is the case, and I would like to give you a full statement for the record.

Mr. RABAUT. All right.

(The matter referred to follows:)

DRAINAGE AND MINOR CONSTRUCTION PROGRAM

The projects included under the "Drainage and minor completion" item represent projects on which major construction will be completed in the current year or on which the remaining facilities have been deferred well past the budget year. On these projects relatively small amounts of funds are requested in the budget year for such things as drainage work, work in connection with settlement of claims, miscellaneous finishing work, etc. The projects included under this item vary from year to year by the dropping out of completed or inactive projects and the adding of others on which current major construction work has been completed. This change in grouping of projects is largely responsible for the difference between the $159,496 programed as carryover in fiscal year 1960 in the budget request for that year and the $2,239,424 presently shown as prior year funds available in fiscal year 1960. A list of projects included in the "Drainage and minor construction" grouping in the fiscal year 1960 budget as compared with those in the fiscal year 1961 budget and the carryover applicable to each project is shown on the attached sheet. It should be noted that the increased carryover is largely associated with projects not included in the category in the 1960 grouping.

Fiscal year 1960 congressional justifications		Fiscal year 1961 congressional justifications	
Project	Programed prior year funds available in fiscal year 1960	Project	Actual prior year funds available in fiscal year 1960
Projects with fiscal year 1960 programs:		Projects with fiscal year 1961 programs:	
All-American Canal System	$97,885	All-American Canal System	$98,878
Buford Trenton	40,611	Buffalo Rapids	
Colorado River front work and levee system.	21,000	Michaud Flats	65,602
Eden		Milk River-Fresno Dam	
Michaud Flats		Parker-Davis	2,340
Milk River-Fresno Dam		Rio Grande-Elephant Butte power.	
Rio Grande-Elephant Butte power.		Riverton	20,551
Riverton		Shoshone	65,325
Technical records and as built drawings.		Technical records and as built drawings.	
Yakima-Roza division		Yakima-Roza division	85,877
Inactive in fiscal year 1960:		Inactive in fiscal year 1961:	
Boise drainage		Buford Trenton	42,794
Cachuma		Cachuma	55,000
Chief Joseph Dam-Foster Creek division.		Carlsbad-Alamogordo Dam	
Colorado-Big Thompson		Chief Joseph Dam-Foster Creek division.	27,793
Deschutes		Colorado-Big Thompson	9,004
Eklutna		Crescent Lake Dam	1,500
Palisades		Eden	86,188
Palo Verde diversion		Eklutna	1,065
Rathdrum Prairie-Hayden Lake unit.		Little Wood River	3,668
Santa Maria		Palisades	140,474
Savage Rapids, fish protective facilities.		Rathdrum Prairie-Hayden Lake unit.	16,239
Sun River-Green Fields division		Santa Maria	133,000
Yakima-Kennewick division		Solano	175,756
		Ventura River	995,580
		Wapinitia-Juniper division	20,453
		Yakima, Kennewick division	192,337
Total	159,496	Total	2,239,424

Explanation of Financing of All-American System of Boulder Canyon Project

The fiscal year 1953 Bureau of Reclamation construction and rehabilitation appropriation provided $1,419,000 for completion of the Coachella Valley County Water District, All-American Canal System of the Boulder Canyon project. This amount included funds for the construction of the Mecca-Blythe Highway Bridge for the floodway crossing at the main canal. These funds for construction of the Mecca-Blythe Bridge were held in reserve for several years until there was no indication that the California Highway Commission would, in the foreseeable future, proceed with construction of the highway. It also became evident that due to rising construction costs the bridge could no longer be constructed within funds reserved. In view of these circumstances the matter was discussed with this committee during the hearings for fiscal year 1956. In its report (H. Rept. 747, 84th Cong., 1st sess.) the committee stated: "The committee directs that none of the funds previously appropriated for construction of a highway crossing for the Mecca-Blythe Highway across the Coachella Canal be obligated for this purpose, but that such funds be applied to essential features of the construction program of the Bureau of Reclamation."

The amount of $92,878 now available on the All-American Canal System represents the amount remaining under the repayment contract, dated December 22, 1947, with the district for the continuing program of field investigations and analysis of data incidental to the preparation of designs for the drainage works and for postentry activity in connection with completion of the Coachella division public land settlement program at a rate of approximately $6,000 per year. Should construction of the Mecca-Blythe Bridge ever become necessary it will be financed with funds available at that time through slippage and savings and after approval by the committee.

Mr. RABAUT. Are there any questions?

"Rehabilitation and betterment," $3,609,000. Insert pages 235 through 239.

(The pages referred to follow:)

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS—CONSTRUCTION AND REHABILITATION

Summarized financial data

Allotment, fiscal year 1960	$3,412,500	
Application of prior year funds	197,473	
Advances from non-Federal sources	8,326	
Balances available in subsequent years	−126,750	
Total obligations, fiscal year 1960		$3,491,549
Allotment, fiscal year 1961	$3,609,000	
Prior year balance available	126,750	
Total obligations, fiscal year 1961		3,735,750

Description.—On older projects which have been in operation for many years it has been found that a large number of structures have far exceeded their useful life and are requiring an excessive maintenance program to continue operations. The deteriorated facilities also often result in inefficient use or loss of irrigation water. The needed repairs are in most instances beyond the ability of the water users to finance on a current basis. In addition, there have been many changes in land use, methods of irrigation, and types of crops raised; and, to place these older projects on a basis comparable to those now being constructed, the antiquated facilities must not only be rehabilitated but also improved.

Repayment.—The act of October 7, 1949, as amended, the basic authorizing legislation for the rehabilitation and betterment program, requires execution of contracts with the irrigation districts concerned for the repayment of the total cost of the rehabilitation and betterment work prior to start of construction. The annual rate of payment by the water users is based on the finding of the Secretary of the Interior as to the ability of the water users to pay, after giving due consideration to their other outstanding repayment obligations. All projects included in the rehabilitation and betterment program have executed such repayment contracts, or, in the case of the initiation of a rehabilitation and betterment program on a project, the execution of a repayment contract is scheduled prior to the start of construction.

Status.—As a result of surveys made in 1947–48, those projects most urgently needing rehabilitation and betterment assistance were selected for initial participation in the program. Nine projects received allotments from the first year's appropriation for this work in fiscal year 1949. Additional projects have been added from year to year as repayment arrangements have been completed and funds made available. During fiscal year 1960 work will be in progress on 15 projects, of which 5 are scheduled for completion in that year.

Work proposed, fiscal year 1961

Rehabilitation and betterment work will be continued on nine projects, two of which are scheduled for completion during fiscal year 1961. In addition, a 3-year rehabilitation program is scheduled to start on the Uncompahgre project in Colorado.

Boise project, Idaho, $567,750.—Work will continue on relining and partially rebuilding 22 miles of canal, and replacing several old metal and wood flumes with concrete pipe siphons. This will complete the Boise project rehabilitation and betterment program.

North Platte project, Nebraska and Wyoming, $360,000.—The program provides for installation of 11.1 miles of concrete irrigation pipe on the lateral system, and for completion of rehabilitation of Pathfinder Dam outlet works.

Orland project, California, $75,000.—This program provides for continuation of relining of canals and laterals.

Rio Grande project, Texas, $575,000.—The program provides for completion of rehabilitation activities for Riverside diversion dam, Franklin heading, Tornillo heading, Mesilla Valley drains and general property. Rehabilitation of other canals, laterals, and drains will continue. The acquisition of construction equipment will be completed. It is planned to perform the majority of the construction work by Government forces in accordance with the Rehabilitation and Betterment Act of October 7, 1949, since the irrigation district does not have an operation and maintenance organization to perform the rehabilitation and betterment work.

Riverton project, Wyoming, $500,000.—The program provides for continuing the placement of asphaltic membrane lining in the pilot canal and laterals, and the Wyoming laterals.

Rogue River Basin project, Oregon, $200,000.—Program provides for continuing rehabilitation and betterment of the canal and distribution systems by the Medford and Rogue River Valley Irrigation Districts. The work will include replacing bridges, farm turnouts, placement of concrete lining, installing concrete pipe, and repairing canal banks.

Salt River project, Arizona, $1 million.—The program provides for lining main canals at critical locations, constructing three additional canal structures, lining laterals, replacing approximately 28 miles of open laterals with underground concrete pipelines and rehabilitating additional lateral structures.

Sun River project, Fort Shaw Division, Montana, $25,000.—Construction is scheduled to be completed on rehabilitation and betterment of canals and laterals. Construction is to be performed under a contract with the Fort Shaw Irrigation District.

Uncompahgre project, Colorado, $209,000.—Upon the execution and validation of a repayment contract, sediment studies will be made preparatory to initiation of design work on the M. & D. headworks. Design work will proceed on the Ironstone canal headworks and work will start on replacement of two timber flumes on the CQ lateral with steel pipe. Designs and specifications will be prepared for replacement of canal lining on the South Canal and construction is scheduled to start on the rehabilitation of the East Canal, GH and GK laterals and the GHC lateral. A shop and maintenance building is scheduled for construction.

Yakima project, Tieton Division, Washington, $224,000.—To complete renewal work on flumes Nos. 2, 3 and 4, to replace flume No. 1 on lateral G, and to continue work on other flumes, siphon, and irrigation laterals.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Arnold, Oreg.	$43,418	$670	$42,748		
Bitter Root, Mont.	324,688	323,612	1,076		
Boise, Idaho	3,322,996	2,338,644	416,602	$567,750	
North Platte, Nebr.-Wyo.	5,728,492	3,937,242	387,451	360,000	$1,043,799
Ogden River, Utah	443,775	194,820	248,955		
Okanogan, Wash.	80,295	48,950	31,345		
Orland, Calif.	1,038,095	534,827	100,768	75,000	327,500
Owyhee, Idaho-Oreg.	492,338	458,184	34,154		
Rio Grande, Tex.	2,300,000		424,125	575,000	1,300,875
Riverton, Wyo.	4,448,355	3,132,859	408,496	500,000	407,000
Rogue River Basin, Oreg.	1,929,490	1,306,000	195,000	200,000	228,490
Salt River, Ariz.	15,978,000	8,627,959	879,308	1,000,000	5,470,733
Sun River, Fort Shaw Division, Mont.	99,935	2,857	72,078	25,000	
Uncompahgre, Colo.	725,000			209,000	516,000
Yakima, Sunnyside Division, Wash.	338,000	161,041	109,493		67,466
Yakima, Tieton Division, Wash.	507,500	6,674	139,950	224,000	136,876
Additional projects	6,500,000				6,500,000
Total Obligations	44,300,377	21,074,339	3,491,549	3,735,750	15,998,739
Method of financing:					
Appropriation, fiscal year 1960			3,412,500		
Application of prior year funds			197,473	126,750	
Advances, non-Federal			8,326		
Balance available in subsequent year			−126,750		
Appropriation required				3,609,000	15,998,739

Mr. RABAUT. Are all the items in the program covered by reimbursement contracts?

Mr. DOMINY. Yes, sir. In the case of the rehabilitation and betterment program, we actually have a statutory limitation in the act that the work cannot be undertaken until an appropriate repayment contract is executed.

Mr. RABAUT. I have no more questions on that.

MISSOURI BASIN PROJECT

The Missouri Basin project. Insert pages 240 through 243a. (The pages referred to follow:)

MISSOURI RIVER BASIN PROJECT (INCLUDING FORT PECK PROJECT)—GENERAL STATEMENT

Summarized financial data

Fiscal year 1960:	
Appropriation	$38,601,043
Advances from non-Federal sources	50,000
Application of prior year funds	2,641,651
Initial underfinancing	1,179,605
Total obligation program, fiscal year 1960	42,472,299
Total program, fiscal year 1961	55,585,280

Status.—As of June 30, 1960, the Bureau will have completed construction of seven units and 17 other units and divisions, including the Fort Peck project, will be under active construction. Partial flood control has been achieved on several main tributaries and actual irrigation will be underway on 15 units. The high voltage transmission system now completed is capable of carrying to load centers the power currently available and is scheduled to be increased to meet the generating capacity of the Missouri River main stem powerplants under construction by the Corps of Engineers.

Work proposed, fiscal year 1961

The fiscal year 1961 requirements for the overall Missouri River Basin project and the Fort Peck project (which is incorporated in the program for the transmission division) are outlined in this consolidated statement. Separate justifications follow for each division or unit to be in an active construction stage in fiscal year 1961, for the Missouri River Basin investigations and advance planning to be financed with construction funds, and for the requirements of other Department of the Interior agencies participating in the basin development.

Construction programs, fiscal year 1961.—This program provides for construction on 19 divisions and units, including the Fort Peck project. Included in the fiscal year 1961 program is $3,500,000 for two new construction starts. These are Almena unit, Kansas, and Yellowtail unit, Montana and Wyoming. The continuing construction includes six units in the "Drainage and minor construction" category because of their relatively limited programs for 1961. Small amounts of funds are included in the "Drainage and minor construction" category for technical records and as-built drawings in connection with functionally completed units for which construction funds are not available. A major portion of the funds requested will be required to make contract payments for work now under construction or to be placed under construction during the fiscal year. During fiscal year 1961 irrigation service will be made available to about 16,500 acres of new land and 18,500 acres of land now inadequately served. Installed power-generating capacity will be increased by 48,000 kilowatts.

Investigations.—The fiscal year 1961 request provides for continuing investigations on seven units and divisions, completion of a basin survey in the Yellowstone division, and miscellaneous investigations in connection with basin surveys which have been completed in prior years.

Advance planning.—The advance planning program provides for collection of design data, preparation of designs and specification, completion of definite plan reports, and for negotiations with local interests leading to execution of

repayment contracts. During fiscal year 1961 advance planning will be underway on eight units and divisions.

Other Interior agencies.—Allotments will be made to the six participating agencies for continuation of multipurpose development of the Missouri River Basin. While most of the funds expended are for direct benefit of the recipient agency in carrying out the Department of Interior's coordinated and comprehensive program for the development of land and water resources, some direct benefits are realized by the Bureau of Reclamation and the Corps of Engineers in the way of surveys and stream data. Activities to be continued under this heading include classification and inventory of public land by the Bureau of Land Management and evaluation of mineral resources by the Bureau of Mines.

The Fish and Wildlife Service will continue studies with the construction agencies to see that proper wildlife protective facilities are incorporated in construction plans. The Geological Survey will collect and analyze basic data on water, land, and mineral resources and prepare maps and reports reflecting these data. The National Park Service is responsible for the comprehensive plan for conservation, development, and use of outdoor recreational and historical resources, while the Bureau of Indian Affairs will be responsible for custodianship and management of the tribes residing on Indian reservations.

Details of the proposed fiscal year 1961 program are given in the statements which follow.

Missouri River Basin project program, fiscal years 1960 and 1961

Divisions, units, and locations	Estimated total obligations	Obligations to June 30, 1959	Obligation program, fiscal year 1960	Obligation program, fiscal year 1961	Balance to complete
Completed and inactive units:					
Fort Clark unit, North Dakota	$651,904	$651,904			
Heart Butte unit, North Dakota	6,419,908	4,272,908			$2,147,000
Keyhole unit, Wyoming	4,811,280	4,720,280			91,000
Kortes unit, Wyoming	14,513,653	14,513,653			
St. Francis unit, Colorado	17,428,227	13,244,942			4,183,285
Savage unit, Montana	510,098	479,369			30,729
Total	44,335,070	37,883,056			6,452,014
Construction program:					
Ainsworth unit, Nebraska	25,435,000	598,096	$136,932	$1,500,000	23,199,972
Almena unit, Kansas	15,121,000			1,000,000	14,121,000
Bostwick division, Nebraska-Kansas	51,307,176	35,791,781	2,176,320	821,000	12,518,075
Cedar Bluff unit, Kansas	18,301,020	13,870,902	333,618	1,400,000	2,696,500
East Bench unit, Montana	20,195,000		500,000	2,800,000	16,895,000
Farwell unit, Nebraska	31,682,000	603,590	3,016,410	7,700,000	20,362,000
Frenchman-Cambridge division, Nebraska	80,243,057	61,166,298	4,070,884	5,439,000	9,566,875
Glendo unit, Wyoming	44,909,628	40,971,859	2,620,531	775,280	541,958
Helena Valley unit, Montana	14,104,741	10,407,289	2,059,952	565,000	1,072,500
Owl Creek unit, Wyoming	5,377,761	3,922,686	1,000,075	455,000	
Transmission division (includes Fort Peck project), various	339,536,913	130,879,768	17,960,960	24,415,000	166,281,185
Webster unit, Kansas	18,412,042	14,095,411	2,830,187	617,000	869,444
Yellowtail unit, Montana-Wyoming	107,491,129	2,951,129	15,000	2,500,000	102,025,000
Drainage and minor construction:					
Angostura unit, South Dakota	14,518,892	14,229,741	150,151	128,000	11,000
Boysen unit, Wyoming	33,827,679	33,812,079	15,600		
Canyon Ferry unit, Montana	29,309,342	29,106,096	203,246		
Crow Creek pump unit, Montana	1,758,685	1,602,685	30,980	30,000	95,000
Dickinson unit, North Dakota	1,766,816	1,764,689	2,127		
Hanover-Bluff unit, Wyoming	3,408,034	2,650,113	261,921	197,000	299,000
Jamestown unit, North Dakota	3,919,969	3,827,699	10,270		82,000
Kirwin unit, Kansas	19,309,143	18,510,574	178,969	30,000	589,600
Lower Marias unit, Montana	65,025,918	21,197,959	97,959		43,730,000
Rapid Valley unit, South Dakota	9,086,624	7,981,721	9,903		1,095,000
Sargent unit, Nebraska	8,354,235	5,997,877	17,250	100,000	2,239,108
Shadehill unit, South Dakota	11,334,502	7,797,328	56,174	98,000	3,383,000
Technical records and as-built drawings	69,430	39,805	14,625	15,000	
Subtotal, construction [1]	973,805,716	463,777,175	37,770,044	50,585,280	421,673,217
Investigations	51,673,481	40,845,063	901,371	656,000	9,271,047
Advance planning	25,564,939	16,371,515	1,152,448	1,344,000	6,696,976
Other departmental agencies	98,058,000	50,305,643	2,648,436	3,000,000	42,103,921
Total [1]	1,149,102,136	571,299,396	42,472,299	55,585,280	479,745,161

[1] Active units only.

IRRIGATION AND POWER REVENUE REPAYMENTS

Mr. RABAUT. Of the total cost of this basin project allocated to irrigation, how much is to be paid by irrigators and how much is to be subsidized by power revenues?

Mr. DOMINY. The biggest share of the irrigation allocation on the Missouri River Basin will be paid by the powerplants of this project.

On the average, the Missouri Basin units pay about 22 to 25 percent of the irrigation allocation, unit by unit, and the balance of the irrigation allocation is paid from power revenues available to the project after power has paid out its allocation, with interest.

The overall allocations at the moment: Irrigation is allocated $2,726,539,000 and will repay $407,707,000.

Mr. RABAUT. That is irrigation?

Mr. DOMINY. $407,707,000 to be paid by irrigation.

Commercial power will pick up the balance of the allocation to irrigation.

POWER RATES

Mr. RABAUT. At what price are you now selling Missouri Basin power and at what price could you sell it if you were not subsidizing irrigation?

Mr. BENNETT. Mr. Chairman, the average return per kilowatt-hour under the rate schedule for the Missouri River Basin firm commercial energy is 5.6 mills.

We have two different rate schedules for firm power in the Missouri River Basin, one for the eastern division and one for the western division. The eastern division is producing an average return of just about 5.2, and the western division produces an average return of about 6½.

Now, we have—presumably and technically you could sell the power at a somewhat higher rate. Again here is the situation, where the irrigation assistance is paid out after the power facilities are paid out, so there is a component in the power rate only to the extent that the power rate may return the power costs in less than a 50-year period.

We are in the process right now of analyzing very carefully what our returns and revenues are under the existing rate structure.

Mr. RABAUT. When do you expect to complete that study?

Mr. BENNETT. I would hope sometime this spring.

Mr. RABAUT. We will get some information on that at a later time.

Mr. BENNETT. We should have it for you by the hearings next year.

Mr. RABAUT. Does it now appear from your studies as far as you have gone that you might have to increase the power rate?

Mr. BENNETT. We have several factors affecting this, Mr. Chairman. For example, the amount of money allocated to power has almost doubled since 1950. The original power rates were based upon load factors around 45 percent. Now those load factors have increased to almost 60 percent. The allowances and discounts are shown to be greater than had been originally anticipated. At the same time, the waterflow through the adverse period we have been running through has not been as great as anticipated.

The corps has not been able to fill the reservoirs as far as they thought they could, while at the same time the installed capacity has gone up.

These items all taken together are giving us some concern at the moment on our rate structure. Now by the structure, I mean the combination of the capacity charge and the energy charge. Whether we can take care of the situation by adjusting the structure or whether we have to take care of it by adjusting the average is our problem.

Mr. RABAUT. Any questions?

The load factor there is relatively low; isn't it?

Mr. BENNETT. No, sir; 60 percent is about what it is running now in the eastern division. Load factors all over the country are increasing.

Mr. RABAUT. Do you expect this to go further?

Mr. BENNETT. As industry comes in and you get more and more air conditioning and things of that kind on the line, your load factors increase, too.

Mr. RABAUT. And the iceboxes and washing machines?

Mr. BENNETT. Everything of that kind which is a fairly constant requirement for kilowatt-hours. As that part increases, your load factor increases. It is happening all over the country today.

Mr. RABAUT. You naturally would anticipate this load factor would increase, too?

Mr. BENNETT. Back in 1944 and 1945 when this rate structure was derived, there was no particular reason at that time to assume that it would go as fast as it has gone.

Mr. RABAUT. That percentage change there of 40 to 60 naturally interests us.

Mr. BENNETT. It is a matter that is of concern to power people all over the country, actually.

AINSWORTH UNIT, NEBRASKA

Mr. RABAUT. We will take up the Ainsworth unit, $1,500,000. Insert pages 244 through 247.

(The pages referred to follow:)

PF - 65
(7 - 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin--In north-central Nebraska in Cherry, Brown and Rock Counties near the confluence of the Snake and Niobrara Rivers

AUTHORIZATION Acts of August 21, 1954 and May 18, 1956 | B/C RATIO 2.44 Date 12/31/59

LAND CERTIFICATION By Secretary May 21, 1957 | DEFINITE PLAN REPORT Approved by Commissioner September 28, 1955

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 25,435,000	Appropriations to June 30, 19 59	$ 735,028
Net Property and Other Transfers	714,500	Appropriations for F. Y. 19 60	.....
Cash Advances--Non-Federal	.....	Appropriations to Date	735,028
Adjustment	1/ 274,000	Initial Underfinancing F. Y. 1960	.....
		Appropriations Required for F. Y. 19 61	1,500,000
Total to be Allocated	1/ 26,423,500	Balance to Complete after F.Y. 19 61	$ 23,199,972

ALLOCATIONS 2/

Irrigation 1/	$ 25,919,700
Power	.....
M. & I. Water	.....
Flood & Nav.	.....
Fish & Wildlife	489,000
Recreation	14,800
Total 1/	$ 26,423,500

REPAYMENT

Amount Repaid by Irrigators	$ 7,669,800
Amount Repaid by Power 1/	18,249,900
Amount Repaid by M. & I. Water	.....
Non - Reimbursable	503,800
Total 1/	$ 25,423,500

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 763
Repayment of Investment per acre:	
By Irrigators	$ 226
By Power Revenues	537
By M & I Water Users	.....
Payment Capacity per Acre	$ 9.05
Annual Charges:	
O. & M.	$ 3.28
Construction	5.77
Total	$ 9.05

STATUS OF REPAYMENT CONTRACT: **Water service and repayment contract executed September 12, 1956 with Ainsworth Irrigation District.** Validation proceedings are on appeal to the Nebraska State Supreme Court.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date
Merritt Dam and Reservoir	68,600 A.F.	11	6-64
Ainsworth Canal 620 c.f.s.	22.8 Miles	4	6-66
Ainsworth Laterals	33,960 Acres	4	1967
Ainsworth Drains	63.4 Miles	3	1967
Minimum Health & Safety Facilities 1, 2 & 3/		..	1965

	Size or Cap.	Completion % 1-1-60	Completion Date
Permanent Operating Facilities		4	1957
Temporary Camp		89	5-71

Acreage Full Supply 33,960 Supplemental Supply ..... Total Acres 33,960 Power kw .....

Region	Date	Project and State
7	1-18-60	Missouri River Basin Project, Ainsworth Unit, Nebraska

BR-244

[1] Includes $187,000 capitalized operation, maintenance, and replacement to be funded by operation and maintenance appropriation, and $87,000 of Missouri River Basin project interest-free power allocation.

[2] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$25,925,700	$25,919,700
Fish and wildlife	489,000	489,000
Recreation	14,800	14,800
Total to be allocated	26,429,500	26,423,500

Reduction in total to be allocated and in irrigation allocation in the amount of $6,000 results from a decrease in the suballocation of interest-free pumping power from 22 percent to 20 percent.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.99.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.09.

Agricultural production present and future

Present and future crops by percent of acreage in irrigable area are:

Crop	Present	Future
Corn	34	30
Alfalfa hay	1	32
Small grains	23	16
Sugar beets (or cash crop)	0	11
Forage and pasture	38	7
Other	4	4
Total	100	100

JUSTIFICATION

Description.—The Ainsworth unit will provide a full water supply for the irrigation of 33,960 acres of semiarid land presently dry farmed in Brown and Rock Counties in north central Nebraska. In addition to irrigation, the project facilities will provide benefits for recreation, fish and wildlife, and pollution abatement.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Merritt Dam and Reservoir, $977,000.—The program provides for the award of the contract for the dam and access road. Rights-of-way will be acquired for the damsite. Specifications will be issued for gates, outlet pipe, and related equipment.

Ainsworth canal, $400,000.—Collection of design data for the first section of the Ainsworth canal will be completed and preparation of final designs and specifications will be initiated. Collection of design data for the second and third sections will be started. Aerial survey contracts will be awarded to assist in determining canal alinement.

Ainsworth laterals, $116,000.—Collection of design data for the first three sections of laterals will be underway.

Permanent operating facilities, $5,000.—For acquisition of minor items of permanent equipment to be used by construction forces during construction of project.

Temporary camp (transa houses), $2,000.—Provides for minor repairs as required for transa housing facilities.

Service facilities, depreciation and salvage, $18,000.—Provides for the acquisition of automotive, laboratory, and miscellaneous equipment, all totaling $26,000, offset in part by distribution of $8,000 during the year to project features on a use basis.

Consolidated expenditures and credits, —$18,000.—Represents estimated cost of vehicles and minor equipment which will be transferred to the project on a nonappropriation basis and the acquisition of $2,000 in stores items, all of which will be used during construction of project facilities. Also included are charges from Solicitor's Office financed from appropriation to that Office.

Change in total obligations

	Obligations
1960 congressional justification	$25,435,000
1961 congressional justification	25,435,000
No change	----------

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Merritt Dam and Reservoir	$5,516,000	$528,271	$95,000	$977,000	$3,915,729
Ainsworth canal	13,643,000	456,258	60,000	400,000	12,726,742
Ainsworth laterals	6,130,000	216,586	35,518	116,000	5,761,896
Ainsworth drains	641,000	15,017	----------	----------	625,983
Minimum health and safety facilities and fish and wildlife	16,500	----------	----------	----------	16,500
Permanent operating facilities	173,000	----------	7,482	5,000	160,518
Temporary camp (transa houses)	143,000	127,086	----------	2,000	13,914
Service facilities, depreciation and salvage	−143,000	65,242	−58,000	18,000	−168,242
Transitional development costs	30,000	----------	----------	----------	30,000
Consolidated expenditures and credits	−714,500	−838,509	25,077	−18,000	116,932
Total expenditures	25,435,000	569,951	165,077	1,500,000	23,199,972
Undelivered orders	----------	28,145	−28,145	----------	----------
Total obligations	25,435,000	598,096	136,932	1,500,000	23,199,972
Method of financing:					
Appropriation, fiscal year 1960	----------	----------	----------	----------	----------
Application of prior year funds	----------	----------	136,932	----------	----------
Appropriation required	----------	----------	----------	1,500,000	23,199,972

COURT DECISION ON REPAYMENT CONTRACT

Mr. RABAUT. The committee has several times reacted unfavorably to this project because of local opposition and legal entanglements about the repayment contract. What is the current status of these matters at this time now?

Mr. DOMINY. When this budget was put together, we had every reason to believe that the final decision on the repayment and water right aspects of this project would have been reached in December but the Ainsworth unit seems to be plagued with problems not of its own making.

In this case, the justice of the Nebraska Supreme Court had a heart attack right at the time that this matter was before the court for consideration and it was delayed. In a telephone call that I had from the attorney for the district Monday of this week, he told me that one of the Nebraska Supreme Court justices was writing the opinion and that he thought the case would be settled in a matter of a few days, now.

But unfortunately as of today, I still don't have for you the final decision from the Nebraska State Supreme Court on the repayment contract validation and on the water right question which the opposition had raised and which will be settled by the supreme court.

Mr. RABAUT. Well do you mean the decision of the justice, now, will have an effect upon the high rate of opposition that we had in the area before?

Mr. DOMINY. It will for all time, I think, resolve whether or not the district formation, the contract that has been voted on by the majority of the people in the area and the water right question as to whether the project has a right under Nebraska water right laws—all that will be settled by the supreme court.

OPPOSITION TO THE PROJECT

Mr. RABAUT. Is there any subsiding on the part of the opposition?

Mr. DOMINY. When we speak of opposition in a democracy—if a majority votes in favor of a course of action, pursuant to a law, the majority prevails. In the case of Ainsworth, the irrigation district was formed exactly in accordance with the requirements of Nebraska law, which took a majority vote. The irrigation contract was voted on favorably by the affected landowners under Nebraska law which took a majority vote. There are some minority elements in the district who have opposed this and have come to Congress and elsewhere with their opposition.

Mr. RABAUT. And now we are waiting for a court decision?

Mr. DOMINY. That is right.

Mr. STAMM. May I add, Mr. Chairman, in June, last summer——

Mr. RABAUT. Just a minute. Could this opposition still mean that certain acres would be withdrawn?

Mr. DOMINY. No, sir.

Mr. RABAUT. Now go ahead.

Mr. STAMM. Last summer a petition was circulated among the landowners of the district to determine what the present extent of opposition was and a majority of the landowners controlling a majority of the land, itself, signed the petition indicating favorable attitude toward the project.

Mr. MAGNUSON. How big a majority?

Mr. STAMM. Fifty-four percent of the ownerships having control of 62 percent of the irrigable land reaffirmed their support of the project.

Mr. RABAUT. Those are the figures I see in the record made by one of the Congressmen last year.

IRRIGATION AND POWER REVENUE REPAYMENT

The committee has also objected to the cost per acre and the extent to which power revenues would be siphoned off and subsidize the farmers on the project.

What changes are there in this situation?

Mr. DOMINY. Well, this remains a unit of the Missouri River Basin that is returning as high a proportion of the irrigation allocation as any other unit that we have been building. As Missouri Basin units go, comparing one with another, this measures up very well.

CORN PRODUCTION

Mr. RABAUT. You continue to show corn will be a major crop of this project. Why contribute to or perpetuate at this time to the production of a surplus crop?

Mr. DOMINY. Corn will undoubtedly continue to be a major crop on the Ainsworth project. It will be devoted primarily to livestock feeding because under irrigation they will, instead of planting corn almost continuously as is generally the case with dry land, they will be able to grow alfalfa and will be able to grow other crops and it will be grown in rotation.

Livestock will become the principal agricultural enterprise.

ALMENA UNIT, KANSAS

Mr. RABAUT. Almena unit, $1 million. Insert pages 248 through 251.

(The pages referred to follow:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Missouri River Basin--In north central Kansas in Norton County along Prairie Dog Creek near Almena, Kansas

AUTHORIZATION: Flood Control Acts of 1944 and 1946 | B/C RATIO 1.03 [5] | Date Dec. 1958

LAND CERTIFICATION: Scheduled for September 1960 | DEFINITE PLAN REPORT: Approved by Commissioner November 4, 1957

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 15,121,000	Appropriations to June 30, 19 59	$
Net Property and Other Transfers	299,000	Appropriations for F. Y. 19 60	
Cash Advances--Non-Federal		Appropriations to Date	
Adjustment	39,000 [1]	Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 1961	1,000,000
Total to be Allocated	$ 15,459,000 [2]	Balance to Complete after F.Y. 19 61	$ 14,121,000

ALLOCATIONS

Irrigation	$5,898,000
Power	None
M. & I. Water	365,000 [2]
Flood & Nav.	8,488,000
Recreation	19,000
F&WL	769,000
Total	$15,459,000

REPAYMENT

Amount Repaid by Irrigators	$ 864,300
Amount Repaid by Power	5,052,700
Amount Repaid by M. & I. Water	365,000 [2]
Non - Reimbursable	9,177,000
Total	$15,459,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 1,102	Payment Capacity per Acre	$ 8.54
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 162	O. & M.	$ 4.10
By Power Revenues	940	Construction	4.20
By M & I Water Users	None	Total	$ 8.30

STATUS OF REPAYMENT CONTRACT: Almena Irrigation District No. 5 contract executed March 7, 1958, and validated November 20, 1958. Norton Kansas municipal water contract executed March 7, 1958, validation not required.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Norton Dam and Reservoir	136,700 A.F.	0	9-64				
Almena Diversion Dam	17.0' x 170'	0	3-64				
Almena System--Canals,							
Laterals and Drains	5,350 ac.	0	12-64	[4]			
Permanent Operating							
Facilities		0	6-64				

Acreage Full Supply 5,350 | Supplemental Supply None | Total Acres 5,350 | Power kw None

Region	Date	Project and State
7	1-18-60	Missouri River Basin--Almena Unit, Kansas

BR-248

[1] Represents $23,000 capitalized O.M. & R. to be financed with O. & M. appropriation and $16,000 interest during construction for municipal water.
[2] Includes $16,000 interest during construction for municipal water.
[3] Planning funds only.
[4] Essentially complete except for drains.
[5] Benefit-cost ratio shown on project data sheet is based on 2½ percent interest. Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.79. Benefit-cost ratio based on total benefits and 3 percent interest is 0.89.

Agricultural production present and future

Principal crops are small grains, row-crop grains, and some forage crops.

JUSTIFICATION

Appropriation title.—Construction and Rehabilitation.

Description.—The Almena unit consists of the Norton Dam and Reservoir, located on Prairie Dog Creek in Norton County, Kans., and the irrigation distribution system necessary to serve 5,350 acres of land in Norton and Phillips Counties, Kans. The dam will also furnish municipal water for the city of Norton. Fish and wildlife propagation and recreational opportunity will also be afforded. Norton Dam and Reservoir will provide flood control for several municipalities and the rural areas of the Prairie Dog Creek Valley and will provide additional protection to areas farther downstream on the Republican and Kansas Rivers. The total storage capacity of the reservoir will be 136,700 acre-feet. The rolled earthfilled dam will have a crest length of 6,360 feet and a height above streambed of 100 feet. The Almena diversion dam 2 miles west of Almena, Kans., together with 27.6 miles of canal and 16.2 miles of laterals will serve lands on both sides of Prairie Dog Creek. A system of collector drains for the disposition of excess surface runoff and irrigation waste is also planned.

Work proposed, fiscal year 1961

Norton Dam and Reservoir, $944,000.—For collection of design data, for design and issuance of specifications, and for award of construction contract for Norton Dam; negotiation and award of contract for the relocation of U.S. Highway No. 383; negotiation and award of contract for the relocation of the Chicago, Rock Island & Pacific Railroad; and for the purchase of rights-of-way for the damsite and the highway and railroad relocations.

Almena diversion dam $15,000.—For the collection of field data.

Almena system—Canals, laterals and drains, $46,000.—For the collection of field data for the Almena canals and laterals.

Consolidated expenditures and credits, —$5,000.—Represents charges from the Solicitor's Office financed from appropriations to that office and $1,000 for the acquisition of stores items which will be distributed to project facilities during the year.

Changes in total obligations

	Obligations
1960 congressional justification	([1])
1961 congressional justification	$15,121,000

[1] Not included in fiscal year 1960 congressional justifications.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Norton Dam and Reservoir	$12,300,000	$218,000	$2,000	$944,000	$11,136,000
Almena diversion dam	688,000	13,000		15,000	660,000
Almena system-canals, laterals, and drains	2,366,000	35,246	1,112	46,000	2,283,642
Permanent operating facilities	63,000				63,000
Other project costs	3,000				3,000
Consolidated expenditures and credits	−299,000	−266,246	−3,112	−5,000	−24,642
Total expenditures	15,121,000			1,000,000	14,121,000
Undelivered orders					
Total obligations	15,121,000			1,000,000	14,121,000
Method of financing:					
Appropriation, fiscal year 1960					
Appropriation required				1,000,000	14,121,000

Mr. RABAUT. Explain this new start and tell us why it was selected for beginning construction this year when the benefit-cost ratio is only 1.03 to 1?

Mr. DOMINY. The Almena unit consists of the Norton Dam and Reservoir located on Prairie Dog Creek in Norton County, Kans., and the distribution unit necessary to serve 5,350 acres of land in Norton and Phillips County, Kans.

The dam will also furnish municipal water for the city of Norton. There will be some fish and wildlife propagation and recreational opportunities afforded by the dam.

Norton Dam and Reservoir will provide flood control for several municipalities and for the rural areas of the Prairie Dog Creek Valley and will provide additional protection to areas farther downstream on the Republican and Kansas Rivers.

Mr. RABAUT. We have the fish and wildlife item which is quite high. If we didn't have that in, what would the benefit-cost ratio be then?

Mr. DOMINY. Will you comment on that, Mr. Bennett?

Mr. RABAUT. We have 1.03 to 1.

Mr. BENNETT. Associated with the fish and wildlife allocation are comparable benefits. I would be inclined to think, offhand, that based upon the usual way those are handled it would not change the benefit-cost ratio if we eliminated the fish and wildlife.

Mr. RABAUT. Suppose you supply for the record the benefit-cost ratio figured on direct benefits only?

Mr. BENNETT. We will be glad to do that.
(See foregoing project data summary.)

REPAYMENT

Mr. RABAUT. On this same project, power revenues are expected to repay $940 per acre, while irrigators will pay only $162 per acre. On the total Federal investment of $1,102 per acre.

Are there other projects ready for construction for which the irrigation subsidy is not so great?

Mr. DOMINY. Not in the Missouri River Basin area, Mr. Chairman.

Mr. RABAUT. Do you have any that have a better cost ratio?

Mr. BENNETT. May I comment on one thing there: On all of these Missouri River Basin units, the average amount which the irrigators are paying is running around 12 to 28 percent. This particular one happens to be at 14.7 percent.

Mr. RABAUT. Upon what basis do you pick this project? It is so marginal.

Mr. BENNETT. The principal reason for picking this one——

Mr. RABAUT. Did you pick it or did the Budget pick it?

Mr. DOMINY. This project has been endorsed by the Department of the Interior and was presented as part of our budget submittal to the Bureau of the Budget.

Mr. RABAUT. What other projects do you have in the Missouri Basin that would have a better ratio than this? Are they being considered or left standing aside? I don't quite understand why this particular type of project with this benefit-cost ratio is being considered.

Mr. DOMINY. In order to get a project up to the construction stage requires the complete planning as well as the support of local interests, the formation of districts, and the negotiation of repayment contracts.

MUNICIPAL WATER CONTRACT

The municipal water contract was executed March 7, 1958—2 years ago—by the city of Norton, Kans. The irrigation district also executed their contract in 1958.

In looking at the Missouri Basin, we all must recognize that this was a basinwide approach and at the time the Missouri River Basin project was authorized in the Flood Control Act of 1944, it was recognized that this entire area of the High Plains had been one of the hardest hit regions in the whole Nation, during the drought and depression period. This project was an outgrowth of that. It was a recognition on the part of the Congress that basinwide water resource development was necessary to breathe good economic life into this area. It had too many people under dryland conditions to maintain their existing economy and, in order to put more stability into the economy, this basinwide approach, with power revenues available to any project within the entire basin as an aid to irrigation was authorized by Congress.

BENEFIT-COST RATIO

Mr. RABAUT. Now, Mr. Dominy, in your wide field you oversee a great area. You have projects here and projects there and I can't for the life of me see why this could be considered the best project to pick out, from its benefit-cost ratio setup.

Off the record.

(Discussion off the record.)

Mr. RABAUT. Even within the Missouri Basin project, don't you have a better project?

Mr. DOMINY. We have some units with a higher benefit-cost ratio and some with a greater return on the irrigation allocation from the lands, and needs less assistance from power revenue than does the Almena unit. We have none at the moment that has been completely planned, investigated, and on which the repayment contracts are all executed so that it is ready to put into construction, however.

FLOOD CONTROL AND MUNICIPAL WATER

Mr. RABAUT. Flood control is a large feature in this project. Is the project economically feasible purely as a flood control measure without confusing the issue by injecting almost wholly subsidized irrigation features?

Mr. DOMINY. Will you comment on that, Mr. Bennett?

Mr. BENNETT. I don't know the answer.

Mr. RABAUT. Supply this figure for the record: What the benefit-cost ratio would be with only flood control and municipal water in the project.

Mr. BENNETT. We would have to have a reduced-cost estimate resulting from eliminating the irrigation features.

Mr. RABAUT. I think the irrigation features in this project are kind of a sideline.

Mr. BENNETT. We can try. We may have to get a new estimate on a smaller dam.

(The information requested follows:)

BENEFIT-COST RATIO FOR ALMENA UNIT SERVING FLOOD CONTROL AND MUNICIPAL WATER ONLY

A dual purpose project at the Norton site formulated to serve flood control and municipal water only would have a benefit-cost ratio of 0.81 to 1 for a 100-year period. Costs and benefits associated with the purposes of irrigation, fish and wildlife, and recreation have been omitted from this hypothetical project.

BOSTWICK PROJECT, NEBRASKA-KANSAS

Mr. RABAUT. Bostwick project, $821,000.

Insert pages 252 through 255.

(The matter referred to follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION	Missouri River Basin - In Harlan, Franklin, Webster and Nuckolls Counties in Nebraska and in Jewell, Republic and Cloud Counties in Kansas. The general location is in south central Nebraska and north central Kansas
AUTHORIZATION	Flood Control Acts of December 22, 1944 and 1946 — B/C RATIO 2.01 — Date Dec. 1958
LAND CERTIFICATION	By Secretary 4-21-53, 2-1-54, 9-8-54, 6-14-55 and 1-17-58 — DEFINITE PLAN REPORT Suppl. approved July 3, 1956 Scandia System D.P.R. Supplement to be submitted 1962

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 51,283,176	Appropriations to June 30, 19 59	$ 35,796,176
Net Property and Other Transfers	378,478	Appropriations for F. Y. 19 60	2,147,925
Cash Advances--Non-Federal	24,000	Appropriations to Date	37,944,101
Adjustment	45,451,074 1/	Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 19 61	821,000
Total to be Allocated	$ 97,136,728	Balance to Complete after F.Y. 1961	$ 12,518,075

ALLOCATIONS 3/

Irrigation	$ 59,599,728
Power	None
Conservation M. & I. Water	24,000
Flood & Nav.	36,772,200
Recreation	78,800
Fish&Wildlife	662,000
Total	$ 97,136,728

REPAYMENT

Amount Repaid by Irrigators	$ 15,844,040
Amount Repaid by Power	43,810,488
Amount Repaid by M. & I. Water	None
Contributions 2/	24,000
Non - Reimbursable	37,458,200
Total	$ 97,136,728

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 691	Payment Capacity per Acre	$ 9.07
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 184	O. & M.	$ 3.81
By Power Revenues	507	Construction	4.62
By M & I Water Users		Total	$ 8.43

STATUS OF REPAYMENT CONTRACT: Nebraska-Bostwick Irrigation District contract amended November 10, 1954. Kansas-Bostwick Irrigation District No. 2 contract amended April 24, 1957.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Irrigation Facilities -				Courtland System	49,000 ac.	67	1969
Completed	16,300 ac.	100		Scandia System	13,000 ac.	4	1965
Lovewell Dam and Reservoir	92,200 A.F.	99	4-60	Permanent Operating Facilities		78	3-61
Nebraska-Bostwick Floodway Channels and Drains and Minor Canal and Lateral Construction	7,940 ac.	55	1969	Temporary Camp		100	-

Acreage Full Supply 86,240 — Supplemental Supply None — Total Acres 86,240 — Power kw None

Region	Date	Project and State
7	1-18-60	Missouri River Basin - Bostwick Division, Nebraska-Kansas

BR-252

1 Represents prorated share of Harlan Dam as follows: Irrigation, $11,274,000; flood control, $34,002,200; and recreation, $23,800. Also includes $151,074 capitalized operation and maintenance to be financed with O. & M. funds.

2 Non-Federal cash advances not allocable or repayable by project users.

3 Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$59,641,528	$59,599,728
Flood control	36,772,400	36,772,200
Recreation	60,800	78,800
Fish and wildlife	662,000	662,000
Contributions		24,000
Total to be allocated	97,136,728	97,136,728

The change in the allocation to irrigation is attributed to a contribution of $24,000 by the Kansas Highway Department toward the construction of siphons across public roads and a decrease in the estimate for specific irrigation facilities. The allocation to recreation is increased as a result of a need for additional facilities at Lovewell Reservoir.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.41.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.74.

Agricultural production present and future

Principal crops prior to irrigation were small and row-crop grains with forage crops. With irrigation, there has been a decline in small grains, with an increase in row-crop grains and forage crops.

JUSTIFICATION

Description.—This division is located in south central Nebraska and north central Kansas. The primary function of this multipurpose division is to utilize the storage made by Harlan County and Lovewell Reservoirs for irrigating 86,240 acres of land. In addition to irrigation, the division also provides flood control benefits, recreational facilities, and fish and wildlife habitat conservation.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Nebraska-Bostwick Floodway channels and drains and minor canal and lateral construction, $204,247.—For the collection of field data, preparation of de-

signs and specifications, and the construction of floodway channels in the Franklin, Superior, and Courtland-Nebraska systems. Also to construct irrigation service to flood protected lands adjacent to floodway channels.

Courtland system—Canals, laterals, pump systems, electric service lines, drains, and floodway channels, $648,753.—To complete construction of White Rock extension canal and laterals and pump system No. 1, including electric service lines. To prepare designs and specifications and initiate construction of pump system No. 2, and a portion of the Courtland unit drains.

Service facilities, depreciation and salvage, —$1,000.—The cost of automotive, work, and laboratory equipment will be $2,000, which is more than offset by $3,000 of prior costs to be charged to permanent property.

Other project costs, $19,000.—For settlers assistance program.

Undelivered orders, —$50,000.—Represents distribution to permanent facilities of cost of work contracted for in prior years.

Change in total obligations

	Obligations
1960 congressional justification	$51,349,360
1961 congressional justification	51,307,176
Decrease	42,184

Decrease due to minor adjustments in the estimates for equipment transfers and operation and maintenance during construction.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Irrigation facilities completed [1]	$14,499,073	$14,499,073			
Lovewell Dam and Reservoir	6,271,000	6,244,758	$26,242		
Nebraska-Bostwick: Floodway, channels, drains and minor canal, and lateral construction	3,764,055	2,029,427	90,000	$204,247	$1,440,381
Courtland system: Canals, laterals, pumps, electric service lines, drains, and channels	19,655,931	12,111,684	2,029,398	648,753	4,866,096
Scandia system: Diversion dam, canal, laterals, drains, and floodway channels	6,473,000	269,049			6,203,951
Permanent operating facilities	515,700	347,535	44,465		123,700
Temporary camp	194,240	194,240			
Service facilities: Depreciation and salvage	−194,240	−77,118	−2,000	−1,000	−114,122
Other project costs	506,895	452,583	22,991	19,000	12,321
Consolidated expenditures and credits	−378,478	−361,226	−3,000		−14,252
Total expenditures	51,307,176	35,710,005	2,208,096	871,000	12,518,075
Undelivered orders		81,776	−31,776	−50,000	
Total obligations	51,307,176	35,791,781	2,176,320	821,000	12,518,075
Method of financing:					
Appropriation, fiscal year 1960			2,147,925		
Application of prior-year funds			28,395		
Appropriation required				821,000	12,518,075

[1] Includes Superior-Courtland diversion dam, Franklin south side system, Franklin canals and laterals, Superior Canal, Courtland Canal-Nebraska, and Naponee laterals and floodway channels.

Mr. RABAUT. On page 255 you show a total cost of $3,764,055 for "Nebraska-Bostwick: Floodway, channels, and drains and minor canal and lateral construction." No comparable item was shown in your construction schedule last year. How do you expect the committee to follow what you are doing under a system where you juggle construction schedules each year?

Mr. DOMINY. It appears that we have consolidated a number of features into a new line item. We will certainly be happy to break that out in exactly the same form as it has been presented previously if the committee would like to have us do that.

Mr. RABAUT. Why did you not have the same features in it last year as you have now?

Mr. DOMINY. I don't know why, Mr. Chairman.

Mr. RABAUT. You make a breakdown of it and supply it for the record.

Mr. DOMINY. We will break it down in the same fashion as we have done in previous years and show how it checks out.

(The information requested follows:)

Breakdown of new Bostwick Division program item "Nebraska-Bostwick: Floodway, channels, and drains and minor canal amd lateral construction"

	Estimated total	Total to June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Nebraska-Bostwick: Floodway, channels, and drains and minor canals and lateral construction	($3,764,055)	($2,029,427)	($90,000)	($204,247)	($1,440,381)
Naponee Canal	459,564	444,564			15,000
Superior laterals	672,977	648,977		12,000	12,000
Courtland laterals-Nebraska	287,514	281,514			6,000
Superior Floodway channels	266,000	14,454		79,000	172,546
Courtland Floodway channels-Nebraska	144,000	118,081		25,919	
Franklin Floodway channels	493,000	440,672		52,328	
Nebraska-Bostwick drains	1,441,000	81,165	90,000	35,000	1,234,835

CEDAR BLUFF UNIT, KANSAS

Mr. RABAUT. Cedar Bluff unit, $1,400,000.

Insert pages 256 through 258.

(Pages referred to follow:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin - west central Kansas in Trego and Ellis Counties along the north side of the Smoky Hill River.

AUTHORIZATION Flood Control Acts of 1944 and 1946 — B/C RATIO 2.04 — Date March 1958

LAND CERTIFICATION Scheduled for February 1960 — DEFINITE PLAN REPORT Approved February 5, 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 18,301,020	Appropriations to June 30, 19 59	$ 13,873,020 2/
Net Property and Other Transfers	12,587	Appropriations for F. Y. 19 60	331,500
Cash Advances--Non-Federal		Appropriations to Date	14,204,520
Adjustment	1/ 27,000	Initial Underfinancing F. Y. 19 60	
		Appropriations Required for F. Y. 19 61	1,400,000
Total to be Allocated	1/$ 18,340,607	Balance to Complete after F.Y. 1961	$ 2,636,500

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$ 8,537,607	Amount Repaid by Irrigators	$ 991,730	Irrig. Invest. per Acre	$ 1,377	Payment Capacity:
Power		Amount Repaid by Power	7,590,827	Repayment of Investment per acre:		per Acre $8.07
M. & I. Water	67,400	Amount Repaid by M. & I. Water	67,400	By Irrigators	$ 160	Annual Charges:
Flood & Nav.	8,508,700			By Power Revenues	1.217	O. & M. $3.98
Recreation	45,000			By M & I Water Users	None	Construction 4.09
Fish & Wildlife	682,000	Non - Reimbursable	9,690,600			
Preauthorized	322,100					
Total 1/	$ 18,340,607	Total	1/ $ 18,340,607			Total $8.07

STATUS OF REPAYMENT CONTRACT: Contract with Cedar Bluff Irrigation District No. 6 executed September 3, 1959. Contract for municipal water with City of Russell, Kansas, scheduled March 1960.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Storage Facilities-Completed	377,000 A.F	100	6-59	Temporary Camp		100	--
Cedar Bluff Dam & Reservoir							
Supplemental Construction		15	6-64				
Cedar Bluff Canal, Laterals and Drains	6,200 ac.	5	6-65				
General Service Equipment		0	12-64				

Acreage Full Supply 6,200 — Supplemental Supply None — Total Acres 6,200 — Power'kw None

Region	Date	Project and State
7	1-18-60	Missouri River Basin Project, Cedar Bluff Unit, Kansas

BR-255

1 Includes $25,000 capitalized operation, maintenence, and replacement to be financed with operation and maintenance appropriations and $2,000 interest during construction on municipal water facilities.

2 For completed storage facilities (Cedar Bluff Dam) and irrigation planning.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.79.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.77.

Agricultural production present and future

Principal crops prior to irrigation are small grains, row crops, and some forage crops. With irrigation, there is expected to be an increase in acreages seeded to forage crops and vegetables.

JUSTIFICATION

Description.—The Cedar Bluff unit is located in central Kansas. The completed Cedar Bluff Dam provides control of floods originating in the upper reaches of the Smoky Hill River and furnishes needed fish and wildlife conservation, together with recreational opportunities. This development will provide irrigation for 6,200 acres of irrigable lands to be supplied from storage in the existing reservoir.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Cedar Bluff Dam and Reservoir, $219,062.—For completion of construction of the outlet works extension on Cedar Bluff Dam.

Cedar Bluff system—canal, laterals, and drains, $1,187,938.—To initiate construction of the main canal and to complete design data and to initiate designs and specifications for the remaining canals and laterals.

Service facilities, depreciation, and salvage, —$4,000.—Represents the distribution of prior costs of service facilities to permanent properties.

Other project costs, $2,000.—For cooperative agency assistance and development farm operations.

Consolidated expenditures and credits, —$5,000.—For Solicitor's Office charges financed from appropriation to that Office.

Changes in total obligations

	Obligations
1960 congressional justification	(1)
1961 congressional justification	$18,301,020

[1] Not included in fiscal year 1960 congressional justification.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Storage facilities—completed [1]	$13,688,607	$13,688,607			
Cedar Bluff Dam and Reservoir, supplemental construction	355,000	1,938	$105,000	$219,062	$29,000
Cedar Bluff system—canals, laterals, and drains	4,053,000	122,304	205,648	1,187,938	2,537,110
General services equipment	137,000				137,000
Temporary camp	183,576	183,576			
Service facilities, depreciation, and salvage	−183,576	−183,576	20,000	−4,000	−16,000
Other project costs	80,000	69,778	3,470	2,000	4,752
Consolidated expenditures and credits	−12,587	−12,725	500	−5,000	4,638
Total expenditures	18,301,020	13,869,902	334,618	1,400,000	2,696,500
Undelivered orders		1,000	−1,000		
Total obligations	18,301,020	13,870,902	333,618	1,400,000	2,696,500
Method of financing:					
Appropriation, fiscal year 1960			331,500		
Application of prior year funds			2,118		
Appropriation required				1,400,000	2,696,500

[1] Cedar Bluff Dam and Reservoir.

Mr. RABAUT. This project was not budgeted under this heading last year. Please explain the project.

Mr. DOMINY. The Cedar Bluff unit was included as an item in the drainage and minor construction program in the fiscal year 1960 justifications, with total estimated obligations of $18,301,020.

There is no change in the estimate.

IRRIGATION FEATURES

Now, the reason for the shift from the D. & M.C. item back to a project item is because we are now ready to start on the irrigation features. This is one of the dams we built a good long while ago as a multiple-purpose structure, primarily because of the flood hazards in that area. We had a pretty serious flood on a tributary of the Republican River in 1947 and some lives were lost and the Congress directed us to go ahead and build some of these multiple-purpose features even though irrigation wasn't ready to be undertaken immediately.

MUNICIPAL WATER CONTRACT

Mr. RABAUT. Has the contract for municipal water been signed as yet?

Mr. DOMINY. The contract with the Cedar Bluff Irrigation District was negotiated September 3, 1959, and a contract with the city of Russell, Kans., is scheduled for March 1960.

Mr. STAMM. The attorney for the city of Russell has been ill and is also held up.

Mr. DOMINY. There is a meeting scheduled in the middle of this month to try and resolve the repayment arrangements with the city.

IRRIGATION REPAYMENT

Mr. RABAUT. On this project Federal power revenues will repay eight times as much as the irrigators, on the cost of irrigation. Why should any further Federal funds be dumped into it until the irrigators indicate a willingness to reduce this subsidy?

Mr. DOMINY. Well, the irrigators are going to pay up to their ability to pay. And this, of course, is the basic principle under which the whole Missouri River Basin project was undertaken. We are treating the irrigators here exactly as we have on the other units of the project.

Mr. RABAUT. Who decides their ability to pay? Who makes any sort of study?

Mr. DOMINY. The Bureau of Reclamation makes a complete analysis of the quality of the soils, the size of the farms, and other economic factors and comes up with an estimate of the increased repayment capacity that will result from bringing irrigation to that area.

We have that responsibility under the act to determine the repayment ability.

Now, the Congress didn't lay down "line and item" guidelines to us. The way we proceed about it, Mr. Rabaut, is to actually work up farm budgets of the particular kind of agriculture that will prevail in that area under irrigation and using advice and assistance from the agricultural technicians of the USDA, and State college technicians, we

work up projections of the kind of net returns that we can reasonably expect from irrigation.

Mr. RABAUT. Do you have a yardstick for these fellows or is it just the charm of some individual?

Mr. DOMINY. No, sir. We have a yardstick that we have followed in all of these. It is an actual farm budget analysis based on the sizes of farms and the land class and the yields that will be expected under irrigation and the cost and price projection is based on the best information we can get from the Department of Agriculture. We have to make this repayment analysis over a 40- and 50-year period. We can't do it just on what they are realizing today.

FISH AND WILDLIFE FACILITIES

Mr. RABAUT. Who is going to build all this fish and wildlife stuff? A fish hatchery, $659,800, and fish and wildlife, $522,100. That is the allocation.

I notice the benefit-cost ratio there is not too bad.

Mr. DOMINY. No, this has a reasonably good benefit-cost ratio.

That fish hatchery is not for Federal construction, is it, Mr. Bennett?

Mr. BENNETT. That was my recollection.

Mr. RABAUT. You don't show it under construction.

Mr. DOMINY. My recollection is that we are going to supply some water to a fish hatchery which is currently being constructed by the Fish and Wildlife Service and will use the water released from Cedar Bluff.

CEDAR BLUFF UNIT

Mr. JENSEN. When was the Cedar Bluff Dam constructed? Insofar as irrigation is considered, this is a new start, is it not?

Mr. DOMINY. Cedar Bluff Dam was completed in 1951, having been started in fiscal year 1948 as part of an accelerated program for flood control in the Missouri River Basin. The irrigation phase of the unit was considered as a new start in fiscal year 1960 and is one of the projects added by the Congress during consideration of the fiscal year 1960 appropriation bill. Construction is scheduled to begin on the irrigation phase late in fiscal year 1960 with award of contract for extension of the irrigation outlet works of Cedar Bluff Dam. Funds are available for this work.

Mr. JENSEN. Is there any question as to the quality of water for irrigation?

Mr. DOMINY. No, sir.

LAND VALUES

Mr. JENSEN. What will be the value of the land after spending $1,377 per acre to irrigate it? Do you consider this to be sound economics under present fiscal conditions and surplus crop conditions?

Mr. DOMINY. It is difficult to estimate land values after development for the reason that such property changes hands infrequently and usually some nonirrigated land is averaged into the selling price. In my opinion the better quality land could, on today's market, easily command a price of $450 to $500 or more per acre after development. As to the soundness of spending $1,377 to develop this land under present fiscal and surplus crop conditions, there are several points to be considered.

In the case of this particular project over $642 or almost one-half of the allocated investment of $1,377 represents costs already incurred for storage in Cedar Bluff Reservoir; thus leaving a remaining investment of about $735 required to realize the benefits from the project. Disregarding this point, we would still consider this development warranted. The benefits of irrigated agriculture in the plains area go far beyond the increase in capitalized value to the land. The stabilizing influence on the irrigated farms and the surrounding community is

not reflected in irrigated land values but is a real and significant contribution to the national economic strength. Moreover, there is no surplus of the commodities that we believe will flow from this project. Our experience conclusively establishes that the trend on irrigated land in the Midwest is away from cereal grain production as a cash crop toward an integrated livestock operation in which the crop production is used locally for growth and finishing of livestock. At the present time no surpluses exist in these protein foods and by the time that the Cedar Bluff unit could be brought to full development, a matter of some 8 or 9 years, there might well be a definite shortage of these food products that can only be produced intensively in irrigated areas or in areas in reasonable proximity to dependable feed supplies.

AVERAGE FLOOD DAMAGES

Mr. JENSEN. What was the average flood damage on this river from the Cedar Bluff Dam to the head of the Kanopolis Reservoir prior to the construction of the Cedar Bluff Dam?

Mr. DOMINY. The average annual flood damage in the reach of the Smoky Hill River between Cedar Bluff Dam and Kanopolis Reservoir would be $43,000 without Cedar Bluff Dam in operation. This amount does not include damages along the river below Kanopolis Reservoir which are reduced appreciably by the operation of Cedar Bluff Reservoir as a part of the integrated flood control system on the Kansas and Missouri Rivers.

EAST BENCH UNIT, MONTANA

Mr. RABAUT. East Bench unit, $2,800,000.
Insert pages 259 through 263.
(The pages referred to follow:)

PF-43
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin--Southwestern Montana in Beaverhead County. The project works extend north from Clark Canyon Dam to lands near the City of Dillon.

AUTHORIZATION Flood Control Acts of 1944 and 1946 | **B/C RATIO** 2.05 | **Date** 8/24/59

LAND CERTIFICATION Scheduled March 1960 | **DEFINITE PLAN REPORT** Revised report scheduled March '60

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 20,125,000	Appropriations to June 30, 1959	$ .....
Net Property and Other Transfers	645,000	Appropriations for F. Y. 1960	300,000
Cash Advances--Non-Federal		Appropriations to Date	300,000
Adjustment	1/ 879,000	Initial Underfinancing F. Y. 1960	200,000
		Appropriations Required for F. Y. 1961	2,800,000
Total to be Allocated	$ 21,719,000	Balance to Complete after F.Y. 1961	$ 16,895,000

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	New	Suppl.
Irrigation	$ 17,200,000	Amount Repaid by Irrigators	$ 3,066,000	Irrig. Invest. per Acre	$ 345	
Power	.....	Amount Repaid by Power	14,149,000	Repayment of Investment per acre:		
M. & I. Water	.....	Amount Repaid by M. & I. Water		By Irrigators	$ 61	
Flood & Nav.	3,368,000			By Power Revenues	284	
Recreation	15,000			By M & I Water Users	...	
F & W.	1,136,000	Non - Reimbursable	4,504,000			
Total	$ 21,719,000	Total	$ 21,719,000			

AMOUNTS PER ACRE	New	Suppl.
Payment Capacity per Acre	5.33	1.32
Annual Charges:		
O. & M.	3.00	0.11
Construction	2.25	1.04
Total	5.25	1.15

STATUS OF REPAYMENT CONTRACT: The water service and repayment contract with the East Bench Irrigation District and the water service contract with the Clark Canyon Water Supply Co. were executed October 8, 1958, following validation of the contracts on July 11, 1958. Repayment contract arrangements are complete.

PRINCIPAL FEATURES

	Size or Cap.	Completion %-1-60	Completion Date
Clark Canyon Dam and Reservoir	261,000 AF	2/ 4	6/64
Barretts Diversion Dam and East Bench Canal		2/ 3	6/65
East Bench Laterals		2/ 3	6/65
East Bench Drains, Channels, and Floodworks		2/ 3	6/75

	Size or Cap.	Completion %-1-60	Completion Date
General Property		0	6/64
Permanent Operating Facilities		2/ 1	6/65
3/ Temporary Camp		2/ 1	6/61

Acreage Full Supply 21,800 | Supplemental Supply 28,004 | Total Acres 49,804 | Power kw —

Region	Date	Project and State
6	1/18/60	Missouri River Basin Project, East Bench Unit, Montana

BR-259

1 Assignment of Canyon Ferry storage cost of $879,000 to this unit.
2 Represents investigation work.
3 Essentially complete.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.91.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.72.

Agricultural production present and future

Full service land is presently used principally for dry range; shift to forage and cereal crops is anticipated upon irrigation.

Supplemental service land is presently used for forage and feed grain crops, no change in pattern is anticipated upon development of supplemental water supply.

JUSTIFICATION

Description.—This is a multipurpose unit which will provide a full water supply for the irrigation of 21,800 acres of semiarid land and will provide a supplemental water supply for 28,004 acres of presently irrigated land in the southwestern part of Montana. The unit will also have flood control, recreation and fish and wildlife benefits.

Appropriation title.—"Construction and rehabilitation."

Work proposed, fiscal year 1961

Clark Canyon Dam and Reservoir, $2,265,000.—A contract will be awarded for relocation of the railroad adjacent to the reservoir area. This construction is coordinated with relocation of U.S. Highway No. 91 which will parallel the relocated railroad. The highway relocation is scheduled to be accomplished as a part of proposed reconstruction under the interstate highway program. Design data will be completed and specifications issued for relocation of a county road around the reservoir connecting to the interstate highway at the damsite. Connecting links to this road are scheduled to be constructed by the State highway commission. Negotiations will be continued for relocation of transmission lines and the balance of the communication lines. Designs will be completed for the dam and reservoir, with plans and specifications to be issued early in the next year. Land and rights negotiations for the entire reservoir area will be completed.

Barratts diversion dam and east bench canal, $190,000.—Provides for the continuation of collection of design data for the diversion dam and canal. The preparation of designs and specifications for construction of these features will be initiated.

East bench laterals, $90,000.—The program provides for the continuation of design data collection and for initiation of work on the designs and specifications for the first block of laterals.

East bench drains, channels and floodworks., $50,000.—Design data collection will be continued on these features.

Permanent operating facilities, $44,000.—The program provides for completion of the office, shop, warehouse, garages, oil house and utilities, all of which will be utilized during the construction period. The program also provides for rights-of-way, grading of camp area, and fencing. Details are as follows:

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Construct office, shop warehouse, garage, oil house and utilities for temporary use during construction and permanent use as project headquarters	$68,000	.....	$46,000	$22,000	.....
Construct two-stall garage at damsite for temporary use by inspection personnel and permanent use for operation and maintenance equipment	5,000	.....	1,500	3,500	.....
Furnish automotive equipment	22,000	.....	.....	.....	$22,000
Furnish ½ cubic yard dragline, D4 tractor and miscellaneous work and operating equipment	57,000	.....	.....	.....	57,000
Minor contracts (including grading, fencing, R/W etc.)	67,000	.....	13,500	18,500	35,000
Total	219,000	.....	61,000	44,000	114,000

Temporary camp, $94,000.—Temporary construction facilities will be provided consisting of purchase and installation of trailers for temporary housing of Government employees. Details are listed below:

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Trailers (30), 13 on hand; other units to be purchased in fiscal year 1961	97,000		12,000	85,000	
Minor contracts	10,000		1,000	9,000	
Total	107,000		13,000	94,000	

Service facilities, depreciation, and salvage, $42,000.—This provides for automotive, office, shop, laboratory, and miscellaneous other equipment required for supervision and inspection of construction, $72,000 of which is partially offset by $30,000 of service facilities to be distributed to permanent properties on a use basis.

Other project cost, $25,000.—For settlers assistance program.

Change in total obligations

	Obligations
1960 congressional justification	[1]
1961 congressional justification	$20,195,000

[1] Not included in fiscal year 1960 congressional justification.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Clark Canyon Dam and Reservoir	$10,463,000	$355,534	$397,000	$2,265,000	$7,445,466
Barratts Diversion Dam and East Bench Canal	4,884,000	160,000	47,000	190,000	4,487,000
East Bench laterals	2,619,000	80,000	10,000	90,000	2,439,000
East Bench drains, channels, and floodworks	2,457,000	80,000	10,000	50,000	2,297,000
General property	155,000				155,000
Permanent operating facilities	219,000		61,000	44,000	114,000
Temporary camp	107,000		13,000	94,000	
Service facilities, depreciation, and salvage	−151,000		34,000	42,000	−227,000
Other project cost	107,000		5,000	25,000	77,000
Consolidated expenditures and credits	−645,000	−675,534	−77,000		107,534
Total expenditures	20,195,000		500,000	2,800,000	16,895,000
Total obligations	20,195,000		500,000	2,800,000	16,895,000
Method of financing:					
Appropriation, fiscal year 1960			300,000		
Initial underfinancing			200,000		
Appropriations required				2,800,000	16,895,000

Mr. RABAUT. This project was started by the Congress last year, but is not yet out of the planning stage. Is that correct?

Mr. DOMINY. We are doing the advanced planning and advanced engineering preparatory to letting contracts to, first, relocate the railroad and the highway——

Mr. RABAUT. How firm are your cost estimates?

Mr. DOMINY. They were based on feasibility grade investigations and assuming the price levels remain within the range of the levels prevailing at the time those estimates were made, we think they are good.

HIGHWAY RELOCATION

Mr. RABAUT. What losses would there be to the welfare of the country if this project was delayed for a year?

Mr. DOMINY. Well, the committee will recollect this is the one where under the Federal aid master highway program, they are putting a four-lane limited access highway through this area. The State highway department held up awarding contracts to build the highway that would be involved but I doubt if they are willing to hold up any longer because it has delayed the tying together of their planned road system. It was on this basis that Congress, as I understood it, put it in last year so that we could move the highway out of the reservoir area. Once the big four-lane highway is built down through the reservoir highway then the project would be dead forever, very probably.

Mr. RABAUT. There are a lot of complications. Federal agencies are in competition now, making the Congress have a more wrinkled brow.

Is it not true the longer it is delayed the longer—the more the Treasury will be protected against sacrificing power revenues to subsidize this one?

Mr. DOMINY. Well, we have the same answer we have on all Missouri Basin units. They are being built under a policy of basinwide multiple purpose development as established by Congress.

FARWELL UNIT, NEBRASKA

Mr. RABAUT. Farwell unit, $7,700,000.

Insert pages 264 through 267.

(The pages referred to follow:)

PF - 45
(7 - 51)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin--Central Nebraska, between Middle and North Loup Rivers in Sherman and Howard Counties.

AUTHORIZATION Act of August 3, 1956 | B/C RATIO 2.04 | Date 12-31-59

LAND CERTIFICATION By Secretary, May 21, 1957 | DEFINITE PLAN REPORT Approved by Commissioner, June 1956

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 31,682,000	Appropriations to June 30, 19 59	$ 695,000
Net Property and Other Transfers	1,657,000	Appropriations for F. Y. 19 60	2,778,750
Cash Advances--Non--Federal	-------	Appropriations to Date	3,473,750
Adjustment	1/ 269,000	Initial Underfinancing F. Y. 19 60	146,250
		Appropriations Required for F. Y. 19 61	7,700,000
Total to be Allocated	$ 1/ 33,608,000	Balance to Complete after F.Y. 19 61	$ 20,362,000

ALLOCATIONS 1/

Irrigation	$ 32,315,000
Power	-------
M. & I. Water	-------
Flood & Nav.	369,000
Fish & Wildlife	868,000
Recreation	56,000
Total	1/ $ 33,608,000

REPAYMENT

Amount Repaid by Irrigators	$ 9,313,000
Amount Repaid by Power 2/	23,058,000
Amount Repaid by M. & I. Water	-------
Non - Reimbursable	1,237,000
Total	1/ $ 33,608,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 615
Repayment of Investment per acre:	
By Irrigators	$ 177
By Power Revenues	438
By M & I Water Users	-------
Payment Capacity per Acre	$ 8.14
Annual Charges:	
O. & M.	$ 3.71
Construction	3/ 4.38
Total	3/ $ 8.09

STATUS OF REPAYMENT CONTRACT: Contract executed March 23, 1957 with Farwell Irrigation District and Loup Basin Reclamation District.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date
Sherman Dam and Reservoir	69,100 AF	13	10-63
Arcadia Diversion Works	20 x 525 ft.	6	9-63
Sherman Feeder Canal	850 c.f.s.	8	12-63
Farwell Distribution System and Drains	52,530 Ac.	5	6-66

	Size or Cap.	Completion % 1-1-60	Completion Date
Farwell Channel Stabilization Measures (U.S.D.A.)		1	6-66
Fish and Wildlife Facilities		--	6-63
Permanent Operating Facilities		--	6-66

Acreage Full Supply 52,530 | Supplemental Supply ------- | Total Acres 52,530 | Power kw -------

Region	Date	Project and State
7	1-18-60	Missouri River Basin Project, Farwell Unit, Nebraska

BR-264

[1] Includes $292,000 capitalized O.M. & R. to be funded by O. & M. appropriation and $290,000 of Missouri River Basin project interest-free power allocation less $313,000 Sherman Reservoir cost assigned to Sargent unit.

[2] Amount repaid by power consists of $23,002,000 irrigation costs and $56,000 reimbursable recreation costs.

[3] Exclusive of $0.05 per acre ad valorem tax to reclamation district which is used to meet water charges.

[4] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$32,336,000	$32,315,000
Flood control	369,000	369,000
Fish and wildlife	868,000	868,000
Recreation	56,000	56,000
Total to be allocated	33,629,000	33,608,000

Total to be allocated and irrigation reduced by $21,000 due to a decrease in suballocation of interest free pumping power from 22 to 20 percent.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.75.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.76.

Agricultural production, present and future

Present and future crops by percent of acreage in irrigable area are:

Crop	Present	Future
Corn	43	31
Alfalfa hay	12	18
Small grains	41	14
Sugar beets (or cash crop)	0	12
Irrigated pasture	0	20
Other	4	5
Total	100	100

JUSTIFICATION

Description.—The Farwell unit is located in central Nebraska in Sherman and Howard Counties and is being constructed primarily as an irrigation development although benefits will also accrue for flood control, recreation, and fish and wildlife. The unit will provide a full water supply for the irrigation of 52,530 acres presently dry farmed.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Sherman Dam and Reservoir, $2,180,000.—The program provides for the continuation of construction of Sherman Dam and Reservoir. Contracts for relocation of county roads in the reservoir area will be awarded and relocations of telephone, power transmission and distribution systems and gas lines in the reservoir area will be underway. Rights-of-way in the reservoir area will be acquired and a contract awarded for reservoir clearing.

Arcadia diversion works, $900,000.—The construction contract for the diversion structure across the Middle Loup River will be awarded. Right-of-way will be acquired and minor relocations of power and telephone lines will be underway.

Sherman feeder canal, $2,420,000.—Rights-of-way for both the first and second section of the Sherman feeder canal will be obtained. Contracts will be awarded for construction of the two sections of the Sherman feeder canal.

Farwell distribution system and drains, $2,130,000.—Acquisition of rights-of-way for the two sections of the Farwell main and lower main canal and first section of the Farwell main and lower main lateral system will be underway. Acquisition of rights-of-way for the second section of laterals will be initiated. Construction contracts for the first section of Farwell main and lower main canal and laterals will be awarded. The contract for the second section of the Farwell main and lower main canal will also be awarded and preparation of final designs and specifications for the laterals will be initiated. Collection of design data for the Farwell central canal and lateral system will be continued. Collection of design data for the first 12.6 miles of the Farwell south and upper south canal and laterals will be initiated.

Farwell channel stabilization measures (USDA), $55,000.—Work will be continued by the Soil Conservation Service on the collection of design data and the preparation of final designs and specifications for construction of channel stabilization works. The pilot channel stabilization work will be continued.

Fish and wildlife facilities, $5,000.—Design data will be completed for the restoration of wildlife habitat area and small contracts will be awarded for the work.

Service facilities, depreciation, and salvage, $30,000.—For the acquisition of vehicles, laboratory, survey and other work equipment all totaling $50,000 offset in part by distribution of $20,000 to project features on a use basis during the fiscal year.

Consolidated expenditures and credits, $20,000.—For nonappropriation transfer of equipment and Solicitor's Office charges financed from appropriation to that office.

Change in total obligations

	Obligations
1960 congressional justification	$31,682,000
1961 congressional justification	31,682,000
No change	

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
CONSTRUCTION PROGRAM					
Sherman Dam and Reservoir	$7,152,000	$568,670	$1,971,000	$2,180,000	$2,432,330
Arcadia diversion works	2,557,000	136,457	182,000	900,000	1,338,543
Sherman feeder canal	6,393,000	397,869	390,000	2,420,000	3,185,131
Farwell distribution system and drains	15,568,000	698,071	438,000	2,130,000	12,301,929
Farwell channel stabilization measures (USDA)	1,313,000	7,257	30,000	55,000	1,220,743
Fish and wildlife facilities	34,000			5,000	29,000
Permanent operating facilities	282,000				282,000
Service facilities, depreciation, and salvage		68,020	22,000	30,000	−120,020
Transitional development	40,000				40,000
Consolidated expenditures and credits	−1,657,000	−1,279,207	−10,137	−20,000	−347,656
Total expenditures	31,682,000	597,137	3,022,863	7,700,000	20,362,000
Undelivered orders		6,453	−6,453		
Total obligations	31,682,000	603,590	3,016,410	7,700,000	20,362,000
METHOD OF FINANCING					
Appropriation, fiscal year 1960			2,778,750		
Application of prior-year funds			91,410		
Initial underfinancing			146,250		
Appropriation required				7,700,000	20,362,000

Mr. RABAUT. No questions.

FRENCHMAN-CAMBRIDGE DIVISION, NEBRASKA

Frenchman-Cambridge division, $5,439,000.
Insert pages 268 through 275.
(The matter referred to follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin - In Hitchcock, Red Willow, Furnas and Harlan Counties in southwest Nebraska along Frenchman Creek and the Republican River to Orleans. McCook is the principal city in the project area

AUTHORIZATION Flood Control Acts of 1944 and 1946 and Act of May 2, 1956 | B/C RATIO 1.87 Date Dec. 1958

LAND CERTIFICATION By Secretary, November 28, 1952, February 10, 1956, Jan. 15, 1957 | DEFINITE PLAN REPORT Approved by Comm. Sept. 1951 Revision to be submitted 3/61

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 80,243,057	Appropriations to June 30, 19 59	$ 61,228,048
Net Property and Other Transfers	491,373	Appropriations for F. Y. 19 60	4,009,134
Cash Advances--Non-Federal		Appropriations to Date	65,237,182
Adjustment	122,478 1/	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 19 61	5,439,000
Total to be Allocated	$ 80,856,908	Balance to Complete after F.Y. 19 61	$ 9,566,875

ALLOCATIONS 4/

Irrigation	$ 58,775,108
Power	
M. & I. Water	
Flood & Nav.	21,369,600
Recreation	2/ 160,500
Fish&Wildlife	551,700
Total	$ 80,856,908

REPAYMENT

Amount Repaid by Irrigators	$ 9,503,480
Amount Repaid by Power	49,389,128
Amount Repaid by M. & I. Water	
Non - Reimbursable	21,964,300
Total	$ 80,856,908

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 914	Payment Capacity per Acre	$ 8.99
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 148	O. & M.	$ 2.84
By Power Revenues	765	Construction	3.71
By M.& I.Water Users			
		Total	$ 6.55

STATUS OF REPAYMENT CONTRACT: Frenchman-Cambridge Irrigation District contract amended January 1956. HRW Irrigation District contract executed November 1956. Frenchman Valley Irrigation District contract executed in November 1956.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Storage Facilities-Completed	165,440AF	100	6-59	Red Willow System	4,150 ac.	3	12-63
Irrigation Facilities -				Frenchman-Cambridge Drains	114.5 mi.	6	6-66
Completed	25,534 ac.	100	6-59	Frenchman Creek			
Trenton Dam & Swanson Lake	253,950 AF	99	5-62	Channelization	50.0 mi.	15	6-62
Red Willow Dam & Reservoir	88,400 AF	5	9-62	Frenchman-Cambridge General			
Meeker-Driftwood System	13,506 ac.	98	4-60	3/ Service Equipment		66	6-66
Culbertson System	21,090 ac.	48	6-66	Permanent Operating Facilities		100	--
				Temporary Camps		100	--

Acreage Full Supply 54,680 acres Supplemental Supply 9,600 acres Total Acres 64,280 acres Power kw None

Region	Date	Project and State
7	1-18-60	Missouri River Basin Project, Frenchman-Cambridge Division, Nebraska

BR-258

[1] Represents $122,478 capitalized O. M. & R. to be financed with O. & M. appropriation.
[2] Includes $43,000 nonreimbursable recreation in keeping with report on Red Willow Dam and Reservoir and associated works approved by Public Law 85-783.
[3] Essentially complete.
[4] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$58,776,608	$58,775,108
Flood control	21,369,600	21,369,600
Recreation	159,000	160,500
Fish and wildlife	551,700	551,700
Total to be allocated	80,856,908	80,856,908

No basic change in allocation. The change in irrigation and recreation allocations were made to correctly allocate $1,500 representing cost of recreation facilities at Red Willow diversion dam to the recreation allocation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.07.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.60.

Agricultural production present and future

Principal crops prior to irrigation were small grains, row-crop grains and some forage crops. With irrigation, there has been a decline in small grains with an increase in row-crop grains and forage crops. It is expected the vegetables and sugar beets will gain favor under irrigation in the future.

JUSTIFICATION

Description.—The division includes four multiple-purpose dams with a total active storage capacity of 507,800 acre-feet and irrigation facilities to serve a full water supply to 54,680 acres and a supplemental water supply to 9,600 acres. The reservoirs will provide storage for irrigation, flood control, recreation opportunities, improvement of fish and wildlife habitat, and minor benefits from pollution abatement.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Trenton Dam and Swanson Lake, $30,000.—**For deferred maintenance contract with the Chicago, Burlington & Quincy Railroad Co.**

Red Willow Dam and Reservoir, $2,850,747.—For continuing the construction of Red Willow Dam and the purchase of reservoir rights-of-way.

Culbertson systems—diversion dam, canals, laterals, and drains, $2,387,926.—The program provides for the completion of the second section of the Culbertson canal and for continuing construction of the Culbertson extension canal and laterals.

Red Willow system—diversion dam, canals, and laterals, $60,000.—For collection of field data and to initiate work on designs and specifications for the Red Willow diversion dam and the Red Willow canal and lateral system.

Frenchman-Cambridge Irrigation District drains, $54,000.—For the collection of field data on drains and for minor drainage construction.

Frenchman Creek channelization, $59,167.—To negotiate relocation agreements with outside agencies for raising bridges, improving roads and protecting railroad embankments.

Service facilities, depreciation and salvage, —$840.—Includes $42,000 for automotive, work, and laboratory equipment and $38,000 for replacement of the project office aircraft, which is more than offset by the distribution of $80,840 prior years equipment cost to permanent properties.

Other project costs, $8,000.—For settlers assistance program.

Consolidated expenditures and credits, —$10,000.—The program provides $10,000 for Solicitor's Office charges financed from appropriation to that Office, and $20,000 for acquisition of stores items, which will be distributed to project facilities during the year.

Changes in total project obligations

	Obligations
1960 congressional justification	$80,098,197
1961 congressional justification	80,243,057
Increase	144,860

Increase due to minor adjustments based on experience to date.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Storage facilities, completed [1]	$15,585,424	$15,585,424			
Irrigation facilities, completed [2]	11,789,868	11,789,868			
Trenton Dam and Swanson Lake	21,434,400	21,357,384	$25,000	$30,000	$22,016
Red Willow Dam and Reservoir	6,597,000	168,537	581,250	2,850,747	2,996,466
Meeker-Driftwood system, canals and laterals	7,381,807	7,211,069	65,738		105,000
Culbertson system, diversion dam, canal, laterals, and drains	11,087,000	3,799,571	3,535,337	2,387,926	1,364,166
Red Willow system, diversion dam, canals, and laterals	3,310,000	85,068	60,000	60,000	3,104,932
Frenchman-Cambridge, irrigation district drains	2,490,000	154,551	17,000	54,000	2,264,449
Frenchman Creek channelization	307,000	15,252	61,000	59,167	171,581
General service equipment	334,000	213,121	6,603		114,276
Permanent operating facilities	59,910	59,910			
Temporary camps	1,228,997	1,228,997			
Service facilities, depreciation and salvage	−1,288,907	−724,439		−840	−563,628
Other project costs	417,931	357,796	30,282	8,000	21,853
Consolidated expenditures and credits	−491,373	−437,137	−10,000	−10,000	−34,236
Total expenditures	80,243,057	60,864,972	4,372,210	5,439,000	9,566,875
Undelivered orders		301,326	−301,326		
Total obligations	80,243,057	61,166,298	4,070,884	5,439,000	9,566,875
Method of financing:					
Appropriation, fiscal year 1960			4,009,134		
Application of prior year funds			61,750		
Appropriation required				5,439,000	9,566,875

[1] Includes Enders and Medicine Creek Dams and Reservoirs.

[2] Includes Cambridge, Bartley, and temporary Meeker diversion dams; Cambridge, Bartley, and upper Meeker subcanals and laterals; upper Meeker laterals and existing Meeker canal.

Mr. RABAUT. No questions.

GLENDO UNIT, WYOMING

Glendo unit, $775,280.
Insert pages 276 through 279.
(The matter referred to follows:)

PYC 63 (7-58) BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin, North Platte River Basin in southwestern Wyoming, Natrona and Platte Counties.

AUTHORIZATION Glendo Unit: Special act of July 16, 1954 Gray Reef Dam and Reservoir: P.L. 85-695 appr. 8/20/58 | B/C RATIO 1.54 | Date 12-7-59

LAND CERTIFICATION By Secretary, October 18, 1954 | DEFINITE PLAN REPORT Glendo Unit: 1-23-53 approved by Gray Reef: 4-29-59 Commissioner

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 44,909,628	Appropriations to June 30, 19 59	$ 42,021,090
Net Property and Other Transfers	101,791	Appropriations for F. Y. 1960	1,571,300
Cash Advances--Non-Federal		Appropriations to Date	43,592,390
Adjustment	1/ -5,580,342	Initial Underfinancing F. Y. 1960	0
		Appropriations Required for F. Y. 1961	775,260
Total to be Allocated	$ 39,431,077	Balance to Complete after F.Y. 19 61	$ 541,958

ALLOCATIONS 2/		REPAYMENT		AMOUNTS PER ACRE 2/	
Irrigation	$ 3,924,710	Amount Repaid by Irrigators	$ 2,376,000	Irrig. Invest. per Acre	$ 104
Power	28,774,367	Amount Repaid by Power	30,336,677	Repayment of Investment per acre:	
M. & I. Water	--	Amount Repaid by M. & I. Water		By Irrigators	$ 63
Flood & Nav.	5,466,450			By Power Revenues	41
Fish&Wildlife	1,251,950			By M.& I.Water Users	
Recreation	13,600	Non - Reimbursable	6,718,400		
Total	$ 39,431,077	Total	$ 39,431,077	Total	$ 1.90

Payment Capacity per Acre foot $ 1.90
Annual Charges:
O. & M. $ .10
Construction 1.80

STATUS OF REPAYMENT CONTRACT: Seven contracts with separate canal companies have been executed for 18,000 acre-feet of the maximum quantity of 40,000 acre-feet available. Ultimate deliveries are estimated to average 33,000 acre-feet annually over 40-year repayment period.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Glendo Dam and Reservoir	798,400 A.F.	99	10-59				
Glendo Powerplant & Switchyard	24,000 KW	98	6-60				
Gray Reef Dam and Reservoir	1,810 A.F.	10	4-61				
Fremont Canyon Powerplant and Switchyard	48,000 KW	84	12-60				

Acreage Full Supply -- Supplemental Supply 37,578 Total Acres 37,578 Power kw 72,000

Region	Date	Project and State
7	1-18-60	Missouri River Basin Project, Glendo Unit, Wyoming

20-276

[1] The adjustment principally represents a deduction of $6,870,900 for the portion of Glendo unit power investment associated with irrigation pumping power requirements on other units. This amount is partially offset by the inclusion of $1,290,558 repayable interest during construction.

[2] Averages in these columns are on the basis of a reservoir water yield of 33,000 acre-feet annually for irrigation.

[3] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$3,958,720	$3,924,710
Power	28,275,529	28,774,367
Flood control	5,513,820	5,466,450
Fish and wildlife	1,262,800	1,251,950
Recreation	13,600	13,600
Total to be allocated	39,024,469	39,431,077

The "Total to be allocated" and the "Power allocation" have been increased by a change from 22 to 20 in the percentage of the power allocation suballocated to other units for interest-free irrigation pumping. The increase has been partially offset by a reduction in estimate of joint facilities and specific power facilities. Changes in other functions are associated reduced cost of joint works.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest, direct benefits only. Indirect benefits not evaluated.
Benefit-cost ratio based on direct benefits and 3 percent interest is 1.40.

Agricultural production, present and future

Present and future crops by percent of acreage in irrigable area:

Crop	Present	Future
Irrigated pasture	23	20
Corn	23	25
Dry beans	16	15
All hay	15	15
Sugar beets	15	15
Grain (all)	5	5
Other	3	5
Total	100	100

Not much change in the land use is anticipated on this project since the irrigation water supplied by this project is supplemental to the existing supply and the area has been irrigated over 50 years. Present crop rotations have been established through experience and because of economic factors and fit the area very well.

JUSTIFICATION

Description.—This project, located in southeastern Wyoming, will provide flood control regulation of upstream power releases and storage and delivery of water for irrigation of lands in Wyoming and Nebraska. In addition to generation of energy at the Glendo and Fremont Canyon powerplants, the regulation of water provided by the Glendo Reservoir will result in converting operations at the Alcova powerplant from a seasonal to a year-round basis.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Glendo Dam and Reservoir, $55,792.—For extraordinary maintenance on railroad and relocations which may develop in connection with relocation work.

Gray Reef Dam and Reservoir, $193,328.—This program provides for completion of Gray Reef Dam and Reservoir.

Fremont Canyon powerplant and switchyard, $706,986.—For completion of Fremont Canyon powerplant and switchyard.

Service facilities, depreciation and salvage, —$267,685.—Represents the transfer of $170,000, the undepreciated value of Fremont Canyon Government community, to the Fremont Canyon powerplant, $102,000 for service facility salvage and $12,685 for prior-year costs distributed to features. These are partially offset by the procurement of automotive, work, and laboratory equipment.

Consolidated expenditures and credits, $86,859.—The program provides $3,300 for acquisition of stores items which will be offset by $18,441 worth of stores items that will be used on project features during the year. Also included is $102,000 for the salvage value of service facilities to offset the same item included with "Service facilities, depreciation and salvage," as the funds received from the salvage must be returned to the Treasury and are not available for expenditure on this project.

Change in total obligations

	Obligations
1960 congressional justification	$45,109,914
1961 congressional justification	44,909,628
Decrease	—200,286

The decrease is due to refinement of the estimate as the unit nears completion. A cost reduction of $300,286 offset in part by $100,000 increase for tailrace modifications at Glendo powerplant.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Glendo Dam and Reservoir	$12,919,613	$12,692,308	$123,305	$55,792	$48,208
Glendo powerplant and switchyard	5,578,106	5,420,867	92,239	.....	65,000
Gray Reef Dam and Reservoir	1,098,009	106,672	798,000	193,328	.....
Fremont Canyon powerplant and switchyard	25,415,700	19,197,416	5,082,548	706,986	428,750
Service facilities, depreciation and salvage	.....	392,685	−125,000	−267,685	.....
Consolidated expenditures and credits	−101,791	−336,650	148,000	86,859	.....
Total expenditures	44,909,628	37,473,298	6,119,092	775,280	541,958
Undelivered orders	.....	3,498,561	−3,498,561	.....	.....
Total obligations	44,909,628	40,971,859	2,620,531	775,280	541,958
Method of financing:					
Appropriation, fiscal year 1960	.....	.....	1,571,300	.....	.....
Application of prior year funds	.....	.....	1,049,231	.....	.....
Appropriations required	.....	.....	.....	775,280	541,958

Mr. RABAUT. No questions.

HELENA VALLEY UNIT, MONTANA

Helena Valley unit, $565,000.
Insert pages 280 through 283.
(The matter referred to follows:)

PF-45
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin, Central Montana in Lewis and Clark County adjoining the City of Helena

AUTHORIZATION Flood Control Acts of 1944 and 1946 | B/C RATIO 1.40 | Date 9/1/59

LAND CERTIFICATION By Secretary of Interior 3/22/55; Certification for revised acreage in FY 1960 | DEFINITE PLAN REPORT Approved by Commissioner March 1954

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 14,104,741	Appropriations to June 30, 19 59	$ 10,437,291
Net Property and Other Transfers	265,259	Appropriations for F. Y. 19 60	2,029,950
Cash Advances--Non-Federal		Appropriations to Date	12,467,241
Adjustment	1/ 1,096,976	Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 1961	565,000
Total to be Allocated	$ 15,466,976	Balance to Complete after F.Y. 1961	$ 1,072,500

ALLOCATIONS 3/

Irrigation	$ 14,033,976
Power	
M. & I. Water	728,000
Flood & Nav.	
Other 2/	705,000
Total	$ 15,466,976

REPAYMENT

Amount Repaid by Irrigators	$ 1,517,000
Amount Repaid by Power	12,522,976
Amount Repaid by M. & I. Water	728,000
Non - Reimbursable	699,000
Total	$15,466,976

AMOUNTS PER ACRE

	Full	Suppl.
Irrig. Invest. per Acre	$ 796	
Repayment of Investment per acre:		
By Irrigators	$ 86	
By Power Revenues	710	
By M & I Water Users		
Payment Capacity per Acre	$5.95	$ 4.26
Annual Charges:		
O. & M.	4.24	$
Construction	1.60	4.26
Total	5.84	$ 4.26

STATUS OF REPAYMENT CONTRACT: Executed November 1956 with Helena Valley Irrigation District for 12,533 acres and with the city of Helena on September 27, 1956. Amendment for increase in district area and increase in district obligation confirmed by Court July 15, 1959, and contract executed December 16, 1959.

PRINCIPAL FEATURES

	Size or Cap.	Completion %-1-60	Completion Date
Helena Valley			
Dam & Regulating Reservoir	10,600 A.F.	89	6/62
Pumping Plant	10,000 H.P.	100	5/59
Tunnel and Canals	33.7 Mi.	93	12/61
Lateral System	13,973 Ac.	76	12/61
Drainage System		20	6/68

	Size or Cap.	Completion %-1-60	Completion Date
Permanent Operating Facilities		98	8/60

Acreage Full Supply 13,973 Supplemental Supply 3,658 Total Acres 17,631 Power kw --

Region	Date	Project and State
6	1-18-60	Missouri River Basin Project, Helena Valley Unit, Montana

BR-280

Footnotes appear on the following page.

[1] Includes Canyon Ferry Dam and Reservoir costs assigned to irrigation function of $1,021,976, and to M. & I. water function of $45,000. Also includes interest during construction on M. & I. allocation of $30,000.
[2] Includes fish and wildlife of $699,000 nonreimbursable and recreation of $6,000 reimbursable.
[3] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$13,527,976	$14,033,976
M. & I. water	727,916	728,000
Other	713,000	705,000
Total to be allocated	14,968,892	15,466,976

The change in Total to be allocated is primarily due to an increase in obligations for construction of irrigation facilities. Change in M. & I. water represents rounding. Change in "Other", represents a correction in the Fish and Wildlife allocation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.55.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.20.

Agricultural production present and future

Present land use is for cereals and forage. Under full irrigation, an increase in forage crops is anticipated.

JUSTIFICATION

Description.—The unit is located in central Montana adjoining the city of Helena. Water supply made available by the unit is used for new and supplemental irrigation, and municipal consumption. Fish and wildlife protection and recreation are other benefits of the unit.

Appropriation Title.—Construction and Rehabilitation.

Work proposed, fiscal year 1961

Helena Valley Dam and regulating reservoir, $55,000.—The program provides for minor completion work; enlargement of the bypass canal; ripping and discing of reservoir floor; and other investigations to determine ultimate reservoir treatment requirements.

Helena Valley tunnel and canals, $114,550.—The program provides for the completion of presently planned canal lining for the main canal system and priming and puddling the completed canals.

Lateral system, $113,661.—For completing construction of laterals, continuing priming and puddling and minor completion work.

Drainage system, $250,450.—Construction of drains will be continued.

Permanent operating facilities, $5,500.—The program provides for purchasing of minor items of operating equipment to be retained on the job after completion of construction.

Service facilities, depreciation, and salvage, —$6,500.—Provides $2,000 for purchase of miscellaneous work and laboratory equipment which is more than offset by the distribution of $7,500 of prior costs to permanent property and $1,000 for salvage.

Other project costs, $22,000.—This provides for continuing settlers assistance type activities and minor completion work.

Consolidated expenditures and credits, $10,339.—Represents $20,000 credit to project costs for funds collected and returned to Treasury which is partially offset by $9,661 for nonappropriation transfers.

Change in Total Obligations

	Obligations
1960 congressional justification	$13,604,241
1961 congressional justification	14,104,741
Increase	500,500

The estimate was increased $588,310 to cover adjustments in noncontract costs to reflect a longer period for completion of work and to cover unanticipated costs that developed in incorporation of the new lateral and drainage systems with the existing systems. Also an increase of $145,205 for temporary bypass construction required at Helena Valley Dam and regulating reservoir necessary because of excessive water loss. These increases were partially offset by a decrease of $231,000 as a result of adjustments in the estimate to reflect contract quantities, and $2,015 for minor adjustments.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Helena Valley Dam and regulating reservoir	$775,000	$680,540	$32,760	$55,000	$6,700
Helena Valley pumping plant	2,796,226	2,796,226			
Helena Valley tunnel and canals	6,027,000	5,612,346	163,604	114,550	136,500
Lateral system	2,570,000	1,002,384	1,448,955	113,661	5,000
Drainage system	1,961,000	264,142	519,668	250,450	926,740
Permanent operating facilities	134,064	119,239	9,325	5,500	
Service facilities, depreciation and salvage	−36,064	−427	−17,325	−6,500	−11,812
Other project charges	142,774	34,506	61,000	22,000	25,268
Consolidated expenditures and credits	−265,259	−266,702	7,000	10,339	−15,896
Total expenditures	14,104,741	10,242,254	2,224,987	565,000	1,072,500
Undelivered orders		165,035	−165,035		
Total obligations	14,104,741	10,407,289	2,059,952	565,000	1,072,500
Method of financing:					
Appropriation, fiscal year 1960			2,029,950		
Application of prior year funds			30,002		
Appropriation required				565,000	1,072,500

REPAYMENT CONTRACT

Mr. RABAUT. You imply that a repayment contract amendment executed on December 16, 1959, increased the repayment obligation but your repayment figure on page 280 is actually slightly lower than last year. Please review the repayment arrangements on this project.

Mr. DOMINY. The reason for the adjustment in the repayment contract was a decision after we got underway to include an area that was only going to get partial service originally into a full service part of the project. This amendment was approved by the water users and validated in the district court July 15, 1959.

Mr. RABAUT. Is that the same figure you gave us a year ago, anticipating this change was coming about?

Mr. DOMINY. Yes, sir. We touched on this last year in the hearings.

Actually, the area included didn't help the repayment arrangements in total significantly because the cost to serve it was higher than the additional proceeds that came, so it really makes a little more unfavorable the overall repayment provision as far as returns from the lands as compared to that part of the irrigation allocation to be paid from power revenues.

Mr. RABAUT. It presented an unfavorable result.

Mr. DOMINY. It is still favorable as a whole but slightly less favorable as a result of adding this unit of land for full service.

This is the way we determine the scope of all our projects. For instance, a project we are building to serve 300,000 acres might be a more economically sound project from a direct cost and return point of view to build it to only 200,000. But if the total benefits will be greater if we build it for 300,000 and total repayment is still attainable we recommend the larger area. This is the kind of consideration we went through here, to add this additional land.

OWL CREEK UNIT, WYOMING

Mr. RABAUT. Owl Creek unit, $455,000.
Insert pages 284 through 287.
(The matter referred to follows:)

PF-45 (7-58) BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin on South Fork of Owl Creek in the Bighorn River Watershed approximately 40 miles northwest of Thermopolis, Wyoming.

AUTHORIZATION Flood Control Act of December 22, 1944 | B/C RATIO 0.79 | Date 9/3/59

LAND CERTIFICATION By Secretary September 15, 1955 | DEFINITE PLAN REPORT Approved by Commissioner 11/3/50

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 5,377,761	Appropriations to June 30, 1959	$ 3,940,098
Net Property and Other Transfers	617,239	Appropriations for F. Y. 1960	982,663
Cash Advances--Non-Federal		Appropriations to Date	4,922,761
Adjustment	1/ 1,116,500	Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 1961	455,000
Total to be Allocated	$ 7,111,500	Balance to Complete after F.Y. 1961	$ .....

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 6,944,090	Amount Repaid by Irrigators	$ 1,048,000	Irrig. Invest. per Acre	$ 529	Payment Capacity per Acre	$ 4.42
Power		Amount Repaid by Power	5,896,040	Repayment of Investment per acre:		Annual Charges:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 80	O. & M.	$ 1.52
Flood & Nav.	74,480			By Power Revenues	449	Construction	2.00
Fish & Wildlife	92,930	Non-Reimbursable	2/ 167,460	By M.& I.Water Users			
Total	$ 7,111,500	Total	$ 7,111,500			Total	$ 3.52

STATUS OF REPAYMENT CONTRACT: Water Service Contract executed with Owl Creek Irrigation District October 28, 1955. Confirmed by Court.

PRINCIPAL FEATURES

	Size or Cap.	Completion % I-1-60	Completion Date		Size or Cap.	Completion % I-1-60	Completion Date
Anchor Dam and Reservoir	17,300 A.F.	78	10/60				
Lucerne Pumping Plants 1 & 2	1,420 H.P.	100	6/56				
Canals and Conduits	40-9½ c.f.s.						
	3.7 Miles	100	6/56				

Acreage Full Supply — Supplemental Supply 13,123 Total Acres 13,123 Power kw —

Region	Date	Project and State
6	1-18-60	Missouri River Basin Project, Owl Creek Unit, Wyoming

BR-284

[1] Includes $418,165 Boysen Reservoir construction cost and $697,000 Missouri River Basin power investment for irrigation pumping energy, and $1,335 for minor cost adjustments to completed work.
[2] Includes land easement for Lucerne pumping plant valued at $50.
[3] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$6,585,000	$6,944,090
Flood control	68,000	74,480
Fish and wildlife	90,000	92,930
Total to be allocated	6,743,000	7,111,500

The increase in total to be allocated is associated with increased obligations incurred in the construction of Anchor Dam and Reservoir. These increases are partially offset by a reduction in the suballocation of Missouri River Basin project interest free power costs for irrigation pumping from 22 to 20 percent.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.53.
Benefit-cost ratio based on total benefits and 3 percent interest is 0.46.

Agricultural production present and future

Present crops include cereals 20 percent, forage 46 percent, miscellaneous field crops 3 percent and idle, fallow, farmsteads, roads, etc., 31 percent.

Future crops are expected to include cereals 22 percent, forage 69 percent, miscellaneous field crops 4 percent and idle, fallow, roads, etc., 5 percent.

JUSTIFICATION

Description.—The unit is located in north-central Wyoming about 40 miles northwest of Thermopolis, Wyo. Water supply made available by the unit is used for supplemental irrigation to Owl Creek Irrigation District lands and In-

dian landowners of the Arapahoe Ranch. Flood control and fish and wildlife protection are other benefits of the unit.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Anchor Dam and Reservoir, $453,842.—The program provides for completion of the dam and reservoir.

Service facilities, depreciation and salvage, —$6,800.—Distribution of prior year costs of service facilities to permanent properties and salvage.

Other project costs, $986.—This provides for minor completion of construction on the pumping plants and canals.

Consolidated expenditures and credits, $6,972.—Represents salvage, nonappropriation transfers of equipment and miscellaneous adjustments.

Change in total obligations

	Obligations
1960 congressional justification	$4,970,456
1961 congressional justification	5,377,761
Increase	407,305

The change is due to increase in the estimate for the dam because of unforeseen conditions consisting of extension of the contract construction time, $267,640; contract adjustments because of an additional solution cavity discovered in the right abutement, $118,583; increases to include reservoir fencing and a gaging station, $10,600; provision of a reservoir evacuation tube and control gate as a safety measure to completely evacuate the reservoir should it be necessary to further treat solution cavities, $21,990; and miscellaneous, —$11,508.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Anchor Dam and Reservoir	$5,377,000	$3,684,536	$1,238,622	$453,842	
Lucerne pumping plants Nos. 1 and 2	407,865	407,865			
Canals and conduits	204,549	204,549			
Service facilities, depreciation and salvage		12,874	−6,074	−6,800	
Other project costs	5,586	1,355	3,245	986	
Consolidated expenditures and credits	−617,239	−616,450	−7,761	6,972	
Total expenditures	5,377,761	3,694,729	1,228,032	455,000	
Undelivered orders		227,957	−227,957		
Total obligations	5,377,761	3,922,686	1,000,075	455,000	
Method of financing:					
Appropriation, fiscal year 1960			982,663		
Application of prior year funds			17,412		
Appropriation required				455,000	

Mr. RABAUT. This project is supposed to be completed this year. Why is it carrying over?

Mr. DOMINY. The contractor didn't complete as much work in the length of time as we had expected and because we have run into need for more grouting and work of that character than had originally been anticipated.

INCREASED COST

Mr. RABAUT. Last year and the year before this project was doubled in cost because of engineering errors.

Now, we have another $407,305 increase for evidently additional errors. And the B–C ratio has dropped to 0.79 to 1. It is a record such as this that destroys the committee's confidence.

Mr. DOMINY. I don't want to imply that the statement is not made with a certain degree of justice in this case. I would point out, however, that I hate to see you use the term "engineering error" because I doubt if it honestly should be characterized with that appellation. We did drill this site. We didn't drill it as extensively as——

Mr. RABAUT. Last year and the year before this project was doubled in cost because of some errors someplace or some miscalculations or some false drillings or some——

Mr. DOMINY. That is right. We did run into a number of problems in the axis of the dam that had not been anticipated and the cost estimates therefore did not include the extra work required to solve those problems.

Mr. RABAUT. What were the original cost estimates on this project?

Mr. DOMINY. Two years ago we showed the cost estimate which was in the 1959 congressional justification at $3,969,345. Last year we showed the estimate——

Mr. RABAUT. What is the cost-benefit ratio?

Mr. DOMINY. The cost-benefit ratio originally was just a little better than unity but since the increased cost it has been dropping below unity. Last year we showed a benefit-cost ratio of 0.83.

Mr. RABAUT. Now, we have a new expense: $407,000 more and the benefit-cost ratio now goes down to 0.79.

Mr. DOMINY. That is right, and the reason for that additional increased cost was another one of these solution cavities that we found on the right abutment pretty high up, on the right abutment as we got into excavating. We feared there would be passage of water around the right abutment.

Mr. RABAUT. It didn't result from the lack of real testing?

Mr. DOMINY. We didn't drill this site as extensively as we normally would have because we had investigated about a quarter of a mile further down on this same stream for an earthfill dam and did extensive drilling at that location. Therefore, when the decision was made that a concrete dam could be built at less cost than the earthfill we didn't do as much drilling on the concrete damsite because we thought that the material—the information gathered just a few hundred yards below on the same stream—would be appropriate and we could not justify the extra expense of a normal drilling program at the site of the concrete dam. The more limited drilling program didn't disclose some of these things that we ran into. All the solution cavities encountered had to be excavated and filled with concrete.

Mr. RABAUT. We have almost $5 million in this project?

Mr. DOMINY. It is very close now to that amount.

Mr. RABAUT. I have a suggestion: With interest costs and drains and power revenues and all other factors considered, would it not be proper for the taxpayers to immediately abandon this project and turn over what is in place to the State or the local people to complete it or destroy it or do with it as they see fit?

Mr. DOMINY. I don't think we would be justified in doing that at this point. We have completed the Lucerne pumping plant as part of it. We have the lands there ready to be irrigated with a distribution system already in place.

Mr. RABAUT. I say that for this reason: We had an increase the year before last and we had an increase last year and we have an in-

crease here of half a million dollars more, roughly. Are we going to bump into something for next year? If we are, this benefit-cost ratio is not firm now.

Mr. DOMINY. The only additional thing that could happen on this project—and I am not confident that it won't happen—is that we will find some solution cavities out in that reservoir area when we get a lake full of water and the weight of the water may open up something that we haven't discovered.

Believe me, after we found the solution channels in the damsite, we did explore very carefully the reservoir area more than we normally would. It had been explored originally and found to be satisfactory. But when we discovered this cavity in the axis of the dam, the Commissioner at that time, Mr. Dexheimer, personally went out and had a group of top level geologists meet him at the site and serious consideration was given to abandoning the Owl Creek Anchor Dam at that time. But the decision was made that the reservoir was all right. They didn't find anything troublesome after an exhaustive analysis of it——

Mr. RABAUT. With hindsight, would we have been better off to stay with the earthfilled dam?

Mr. DOMINY. It is possible the earthfill dam would have turned out to be the most economic, with the circumstances we have encountered.

We can't be confident had we built on that lower site that similar problems might not have been uncovered, although we just don't know. Our drilling program had not disclosed them and the drilling was more extensive at the earth site than it was on the concrete.

Mr. RABAUT. The committee will stand adjourned until 2 o'clock.

MISSOURI RIVER BASIN, TRANSMISSION DIVISION

Mr. RABAUT. The committee will resume.

We will take up the "Transmission division." That is $24,415,000.

Insert pages 288 through 296b.

(The pages above referred to are as follows:)

FB-83
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin - North Dakota, South Dakota, and portions of Iowa, Colorado, Nebraska, Montana, Minnesota, and Wyoming.

AUTHORIZATION Flood Control Act of December 22, 1944 | B/C RATIO Included with generating units

LAND CERTIFICATION None Required | DEFINITE PLAN REPORT None Required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 339,536,913	Appropriations to June 30, 1959	$ 131,433,111
Net Property and Other Transfers	3,511,199	Appropriations for F. Y. 1960	15,635,684
Cash Advances--Non-Federal		Appropriations to Date	113,063,798
Adjustment	1/-62,371,060	Initial Underfinancing F. Y. 1960	771,530
		Appropriations Required for F. Y. 1961	21,115,000
Total to be Allocated	$ 280,677,052	Balance to Complete after F.Y. 1961	$ 166,251,185

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$	Payment Capacity per Acre	$ -
Power	280,573,394	Amount Repaid by Power	280,573,394	Repayment of Investment per acre:		Annual Charges:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$	O. & M.	$ -
Flood & Nav.				By Power Revenues		Construction	-
Other	2/ 103,658	Non - Reimbursable	2/103,658	By M. & I. Water Users			
Total	$ 280,677,052	Total	$ 280,677,052			Total	$ -

STATUS OF REPAYMENT CONTRACT:

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
				(SEE NEXT PAGE)			

Acreage Full Supply -- Supplemental Supply -- Total Acres -- Power kw --

Region	Date	Project and State
6 and 7	1/18-60	Missouri River Basin Project, (Includes Fort Peck Project) Transmission Division

D2-235

1 Adjustments include:

Interest during construction	+$8,544,814
Interest-free power investment assigned to irrigation pumping (20 percent)	-68,593,772
Adjustments to plant accounts for completed work reflected in total project cost	-803,139
Interest during construction assigned to irrigation pumping	-1,518,963
Total	-62,371,060

2 Funds from Air Force for the Cheyenne-Fort Warren transmission line and Cheyenne substation additions amounting to $75,000. Also includes $1,276 of contributions by individuals for transmission right-of-way easements and contributions of $27,382 toward electrical facility on the Fort Peck project.

3 Change in allocations:

Allocations	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Power:		
Fort Peck project	$67,561,086	
Missouri River Basin, transmission division	253,637,434	$280,573,394
Power total	321,198,520	280,573,394
Other		103,658
Total to be allocated	321,198,520	280,677,052

Change in total and power allocations is due to the deletion of the previously included cost from the Fort Peck project for facilities constructed by the Corps of Engineers, a change in the suballocation to interest-free irrigation pumping from 22 to 20 percent, an increase in total estimated obligations, and the inclusion of reimbursable interest during construction and interest-free irrigation pumping associated with the Fort Peck project previously excluded. "Other" represents contributions which were previously merged with the power allocation but is herein set out for clarity of presentation.

NOTE: Benefit-cost ratios not computed. Benefits and costs included in analysis of the various generating units.

Construction and Rehabilitation, Missouri River Basin Project (Includes Fork Peck Project) Transmission Division

Principal features

	Size or capacity	Completion	
		Percent Jan. 1, 1960	Date
MISSOURI RIVER BASIN PROJECT			
Completed lines and substations	3,839.5 miles, 1,797,093 kilovolt-amperes.	100	
Initial construction:			
Bismarck-Jamestown transmission line No. 2 and substation additions.	239 kilovolts, 99 miles.	12	March 1961.
Boysen-Pilot Butte transmission line and substations.	115 kilovolts, 37 miles, 10,000 kilovolt-amperes.	80	March 1960.
Dawson County-Bismarck transmission line and substation addition.	230 kilovolts, 209 miles.	48	February 1961.
Fargo-Granite Falls transmission and Morris substations.	230 kilovolts, 165 miles, 100,000 kilovolt-amperes.	69	June 1962.
Fort Thompson-Watertown-Granite Falls transmission line and substations.	230 kilovolts, 219 miles, 245,000 kilovolt-amperes.	5	June 1966.
Garrison-Jamestown transmission line	230 kilovolts, 140 miles.	1	October 1962.
Garrison-Minot-Rugby transmission line No. 2 and substation additions.	115 kilovolts, 110 miles.	1	October 1961.
Jamestown-Fargo transmission line No. 2 and substation additions.	230 kilovolts, 83 miles.	3	January 1962.
Jamestown-Grand Forks transmission line No. 1 and substation addition.	115 kilovolts, 110 miles, 50,000 kilovolt-amperes.	1	October 1961.
Jamestown-Grand Forks 115-kilovolt transmission line No. 2 and substation addition.	115 kilovolts, 110 miles.	0	October 1963.
Kortes-Cheyenne-Pine Bluffs-Sidney transmission line and substations.	115 kilovolts, 209 miles, 10,000 kilovolt-amperes.	23	September 1961.
Oahe-Fort Thompson double circuit transmission line No. 3.	230 kilovolt, 54 miles.	3	June 1962.
Sioux City-Denison-Creston transmission line and substations.	161 kilovolt, 150 miles, 80,000 kilovolt-amperes.	0	September 1963.
Sioux City-Spencer transmission line and substations.	161 kilovolts, 70 miles, 55,000 kilovolt-amperes.	0	June 1962.
Utica Junction-Sioux Falls transmission line	230 kilovolts, 67 miles.	100	August 1959.
Additions and modifications to functionally completed lines and substations:			
Central North Dakota transmission line and substations.	6,625 kilovolt-amperes.	10	March 1961.
East River South Dakota substations	200,000 kilovolt-amperes.	3	June 1966.
Fargo-Grand Forks transmission line and substation.	----------	97	November 1959.
Fort Randall-Sioux City transmission line and substation.	230 kilovolts, 122 miles, 75,000 kilovolt-amperes.	----------	June 1963.
Jamestown-Fargo substations	160,000 kilovolt-amperes.	51	October 1963.
Mobridge-Oahe-Fort Randall tie lines and substations.	6.4 miles	1	June 1963.
Oahe-Midland-Rapid City tie lines and substations.	1.1 miles	3	October 1961.
Tap lines, substations and equipment to serve REA and other customers.	----------	18	June 1975.
Other system facilities	----------	63	Do.
Future electrical facilities	----------	----------	December 1999.

Principal features—Contiuued

	Size or capacity	Completion	
		Percent Jan. 1, 1960	Date
FORT PECK PROJECT			
Completed lines and substations	885.6 miles, 228,250 kilovolt-amperes.	100	
Initial construction: Fort Peck-Dawson County transmission line and substation.	230 kilovolts, 105 miles, 60,000 kilovolt-amperes.	53	December 1960.
Additions and modifications to functionally completed lines and substations:			
Havre-Shelby transmission line and substations	7,500 kilovolt-amperes.	2	February 1961.
Tap lines, substations, and equipment to serve REA and other customers.	43.1 miles, 53,250 kilovolt-amperes.	38	June 1975.
Other system facilities		71	June 1968.
Future electrical facilities			March 1975.

JUSTIFICATION

Description.—The division is located in Nebraska, North Dakota, South Dakota, and portions of Colorado, Montana, Wyoming, Minnesota, and Iowa. The transmission facilities of the Missouri River Basin project are necessary to interconnect and coordinate the operation of Bureau of Reclamation and Corps of Engineers hydroelectric powerplants in the basin and to deliver power for irrigation pumping, sales to municipalities, cooperatives, private utilities and other wholesale customers.

Appropriation title.—Construction and rehabilitation.

WORK PROPOSED, FISCAL YEAR 1961

Initial construction

Bismarck-Jamestown 230-kilovolt transmission line No. 2 and substation additions, $2,065,000.—The transmission line and its terminal facilities at Bismarck and Jamestown substations will be completed and energized by the close of the year. The contract for construction of footings and erection of towers will be completed early in the year, and the contract for furnishing and stringing conductor will be completed by the close of fiscal year 1961.

Dawson County-Bismarck 230-kilovolt transmission line and substation addition, $1,124,000.—The transmission line and the terminal facilities at Bismarck substation are scheduled for completion by March 1961 when the first unit of the second powerplant at Fort Peck is scheduled for completion by the Corps of Engineers.

Fargo-Granite Falls 230-kilovolt transmission line and Morris substation (formerly programed as Fargo-Granite Falls 230-kilovolt transmission line), $740,000.—The program provides for initiation of construction and purchase of right-of-way for the Morris substation. Morris substation is located about midpoint of the transmission line.

Fort Thompson-Watertown-Granite Falls 230-kilovolt transmission line and substations, $2,183,000.—Stringing of the second circuit on the Fort Thompson-Watertown section of the existing double circuit steel tower line will be started. Construction will be continued on Fort Thompson substation (initial development) and will be completed on additions at Granite Falls substation.

Garrison-Jamestown 230-kilovolt transmission line, $2,155,000.—A contract will be awarded for construction of footings and the furnishing and erecting of steel towers. Specifications will be issued for furnishing and stringing conductor.

Garrison-Minot-Rugby 115-kilovolt transmission line No. 2 and substation additions (formerly programed as Garrison-Voltaire-Rugby 115-kilovolt transmission line No. 2 and substations), $1,400,000.—This program item has been renamed because the line has been routed via Minot instead of Voltaire to make it possible to provide an interconnection with the Northern States Power Co. for power loads in the Minot area. Construction will continue on the transmission line. Speci-

fications will be issued and contracts awarded for terminal facility equipment and construction work required at Rugby substation.

Jamestown-Fargo 230-kilovolt transmission line No. 2 and substation additions, $2,237,000.—Construction of footings and furnishing and erecting steel towers will continue. Specifications will be issued and a contract awarded for furnishing and stringing conductor. Equipment will be procured and an installation contract will be awarded for the line terminal facilities at Fargo substation.

Jamestown-Grand Forks 115-kilovolt transmission line No. 1 and substation addition, $1,600,000.—A contract for construction of the transmission line will be awarded. Specifications will be issued and contracts awarded for procurement and installation of terminal facility equipment at Grand Forks substation.

Kortes-Cheyenne-Pine Bluffs-Sidney 115-kilovolt transmission line and substations, $1,402,781.—The program provides for completion of the Kortes-Cheyenne section and the major portion of the Cheyenne-Pine Bluffs-Sidney section. In addition, Cheyenne and Sidney substation additions will be completed. Also, construction contracts for completion of Sidney substation additions and Kimball substation will be awarded.

Oahe-Fort Thompson 230-kilovolt double circuit transmission line No. 3, $1,576,000.—For continuing construction of a double circuit transmission line to interconnect Oahe Dam with Fort Thompson substation. Specifications will be issued and a contract awarded during the year for furnishing and stringing conductors and overhead ground wires.

Sioux City-Denison-Creston 161-kilovolt transmission line and substations, $1,410,000.—The program provides for completion of right-of-way for the initial section and award of a contract for construction of the transmission line. Equipment and installation contracts will be awarded for Denison substation. Right-of-way will be completed and equipment contracts will be awarded for Creston substation.

Sioux City-Spencer 161-kilovolt transmission line and substations, $970,000.—The program provides for completion of right-of-way acquisition and award of a contract for construction of the transmission line. Equipment and installation contract will be awarded for Spencer substation and for Sioux City substation additions.

Additions and modifications to functionally completed lines and substations

Central North Dakota transmission line and substations, $128,000.—Provides for completing the installation of transformer cooling and voltage control equipment in the Devils Lake substation; modification of terminal facilities for the Edgeley-Groton line, and the installation of transformer cooling in the Edgeley substation; and additions to Carrington substation for power delivery to Central Power Electric Cooperative (tricounty).

East River, S. Dak., substations, $794,300.—Included in the program are award of contracts for additions to Watertown substation to provide terminal facilities for the second circuit of the Fort Thompson-Watertown-Granite Falls transmission line which is under construction; completion of the initial 230-kilovolt development at Huron substation; and completion of additions at Tyndall substation for service to the city of Tyndall.

Fort Randall-Sioux City 230-kilovolt transmission line and substation, $1,497,000.—The program provides for issuance of specifications and award of a contract for installation of the second circuit on the existing 122-mile double-circuit steel towers for the Fort Randall-Sioux City 230-kilovolt transmission line; additions to Sioux City substation for terminal facilities for the Fort Randall-Sioux City second circuit; and additions at Sioux City substation of an additional 230/161-kilovolt transformer and circuit breakers for interconnection with the Iowa Public Service Co.

Jamestown-Fargo substations, $400,000.—Specifications will be issued and a contract awarded for installation of equipment in Jamestown substation for the terminal facilities for Jamestown-Fargo transmission line No. 2 and Jamestown-Grand Forks transmission line No. 1, both of which are under construction. Also, specifications will be issued and contracts awarded for Jamestown substation terminal facility equipment for the Garrison-Jamestown transmission line which is under construction. Installation of voltage control equipment in Fargo substation will be completed.

Mobridge-Oahe-Fort Randall tie lines and substations, $910,000.—The program provides for awarding contracts for stringing a second circuit on existing steel towers for the Fort Randall to Fort Thompson transmission line and for extend-

ing the existing 230-kilovolt line to Oahe switchyard. Also, reimbursement will be made to the Corps of Engineers for approach towers at Oahe switchyard.

Oahe-Midland-Rapid City tie lines and substations, $139,000.—A contract will be awarded for extending the existing Fort Randall-Oahe transmission line to the Oahe switchyard and for reimbursing the Corps of Engineers for installation of switchyard approach towers. Also, provides for the completion of construction on the additions to Rapid City substation for a 115-kilovolt interconnection with Black Hills Power & Light Co.

Taplines, substations and equipment to serve REA and other customers, $642,000.—The installation of primary metering at East River Cooperative delivery points and work on the Chadron substation additions and stage 02 of the Ralston substation additions will be completed. Contracts will be awarded and installation specifications issued for procurement of equipment for Raderville substation. Specifications will be issued and a contract awarded for procurement of equipment for the Lovell and Thermopolis substation additions. Contracts will be awarded for electrical equipment for the Gunnison and Wray substations additions. The program also provides for continuation of metering installations to serve customers as needed.

Other system facilities, $603,000.—Included are new contracts for tie line load and frequency control equipment; a multichannel microwave system, radio relay stations to cover the new Iowa lines and movable equipment required for operation and maintenance of new transmission facilities being placed in service. Also provides for contract payments for furnishing and installing microwave equipment.

Future electrical facilities, $92,000.—This program covers investigation of the need for future transmission lines and substations, including network analyzer studies.

Service facilities, depreciation and salvage, —$20,000.—For purchase of automotive and other work equipment of $54,000 offset by distribution of $74,000 of prior year costs of service facilities to permanent properties.

FORT PECK PROJECT

Initial construction

Fort Peck–Dawson County 230-kilovolt transmission line and substation, $245,204.—The transmission line and associated substation additions at Dawson County substation are scheduled for completion by March 1961, when the first unit of the second powerplant at Fort Peck is scheduled for completion by the Corps of Engineers. Construction is coordinated with the connecting Dawson County-Bismarck line.

Additions and modifications to functionally completed lines and substations

Havre-Shelby 115-kilovolt transmission lines and substations, $20,000.—The program provides for completion of additions to Shelby substation.

Tap lines, substations and equipment to serve REA and other customers, $37,000.—The Wiota substation will be modernized to reduce existing operational hazards. Construction of a new substation will be initiated in the Wiota-Wolf Point area to serve a pumping plant for irrigation of Indian lands. The program also provides for continuation of metering installations in Bureau customer substations.

Other system facilities, $129,500.—The program provides for establishment of a second tie line load control area at Fort Peck, Mont. Also included are relocation of Terry radio relay station, installation of carrier equipment associated with new 230-kilovolt facilities, construction of a warehouse to facilitate storage and handling of materials and supplies, and the continuation of radio communication equipment purchases.

Future electrical facilities, $5,000.—This program covers investigation of the need for future transmission lines and substations, including network analyzer studies.

MISSOURI RIVER BASIN AND FORT PECK PROJECTS

Other project costs, $16,031.—This program includes minor work on completed transmission lines and substations, such as record drawings, minor adjustments and settlement of right-of-way.

Consolidated expenditures and credits, —$85,816.—Represents cost of stores procured in prior years and current year which will be distributed to permanent property or salvaged during the year and cost adjustments and nonappropriation transfers of cost and property.

Changes in total obligations

1960 congressional justifications:		
Missouri River Basin project, transmission division	$316,026,082	
Fort Peck project	22,105,936	
		$338,132,018
1961 congressional justifications		339,536,913
Increase		1,404,895

The fiscal year 1960 congressional justifications presented Missouri River Basin project transmission division and Fort Peck project separately. The fiscal year 1961 budget now presents these two on a consolidated basis.

The increase is primarily due to the addition of Iowa transmission lines, $8,890,000. This increase is partially offset by revisions to reflect actual bid prices and completion of contracts, $2,594,000; and a large number of changes in plans for future facilities based on refinement of designs and current estimates of the needs of the transmission system. Typical of these changes are: Reduction of $1,194,000 due to elimination of the requirement for a second overhead ground wire on the Fort Thompson-Granite Falls transmission line; elimination of additions to Devils Lake substation, $2,186,000; and elimination of additions to Grand Forks substations, $769,000.

The total reductions are offset in part by increases in other items also resulting from more current information on the facilities required to efficiently distribute the energy generated at federally constructed hydroplants in the Missouri River Basin.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Missouri River Basin project:					
Completed lines and substations	$97,618,685	$97,618,685			
Initial construction:					
Bismarck-Jamestown 230-kilovolt transmission line No. 2 and substation additions	4,319,000	236,608	$2,017,392	$2,065,000	
Boysen-Pilot Butte 115-kilovolt transmission line and substations	1,084,000	205,563	878,437		
Dawson County-Bismarck 230-kilovolt transmission line and substation addition	7,150,000	2,687,189	3,338,811	1,124,000	
Fargo-Granite Falls 230-kilovolt transmission line and Morris substation	8,560,000	4,006,197	1,913,803	740,000	$1,900,000
Fort Thompson-Watertown-Granite Falls 230-kilovolt transmission line and substations	11,607,144	375,327	1,658,000	2,183,000	7,390,817
Garrison-Jamestown 230-kilovolt transmission line	5,400,000	11,451	270,000	2,155,000	2,963,549
Garrison-Minot-Rugby 115-kilovolt transmission line No. 2 and substation additions	2,330,000	13,811	300,000	1,400,000	616,189
Jamestown-Fargo 230-kilovolt transmission line No. 2 and substation additions	3,671,000	11,380	400,000	2,237,000	1,022,620
Jamestown-Grand Forks 115-kilovolt transmission line No. 1 and substation addition	2,910,000	9,451	200,000	1,600,000	1,100,549
Jamestown-Grand Forks 115-kilovolt transmission line No. 2 and substation addition	2,054,000				2,054,000
Kortes-Cheyenne-Pine Bluffs-Sidney 115-kilovolt transmission line and substation	4,210,700	148,846	2,494,123	1,402,781	164,950
Oahe-Fort Thompson 230-kilovolt double circuit transmission line No. 3	3,917,000		530,000	1,576,000	1,811,000

Schedule of construction program, fiscal years 1960 and 1961—Continued

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program—Continued					
Missouri River Basin project—Con.					
Initial construction—Continued					
Sioux City-Denison-Creston 161-kilovolt transmission line and substations	$5,660,000		$350,000	$1,410,000	$3,900,000
Sioux City-Spencer 161-kilovolt transmission line and substations	3,230,000		330,000	970,000	1,930,000
Utica Junction-Sioux Falls 230-kilovolt transmission line	3,080,000	$3,059,305	20,695		
Additions and modifications to functionally completed lines and substations:					
Central North Dakota transmission lines and substations	388,000	7,632	252,368	128,000	
East River, S. Dak., substations	11,505,812	43,469	914,343	794,300	9,753,700
Fargo-Grand Forks 115-kilovolt transmission line and substation	74,000	46,314	27,686		
Fort Randall-Sioux City 230-kilovolt transmission line and substation	3,703,589	122	110,467	1,497,000	2,096,000
Jamestown-Fargo substations	3,742,000	1,720,752	312,248	400,000	1,309,000
Mobridge-Oahe-Fort Randall tie lines and substations	1,964,773	9,646	55,254	910,000	989,873
Oahe-Midland-Rapid City tie lines and substations	204,500	4,042	54,458	139,000	7,000
Tap lines, substations and equipment to serve REA and other customers	6,727,034	1,618,158	602,876	642,000	3,864,000
Other system facilities	7,326,245	3,926,830	323,931	603,000	2,472,484
Future electrical facilities	116,156,040	242,181	102,838	92,000	115,719,021
Service facilities, depreciation and salvage		221,082	1,217	−20,000	−202,299
Fort Peck project:					
Completed lines and substations	11,183,304	11,183,304			
Initial construction:					
Fort Peck-Dawson County 230-kilovolt transmission line and substation	4,872,000	1,718,113	2,908,683	245,204	
Additions and modifications to functionally completed lines and substations:					
Havre-Shelby 115-kilovolt transmission lines and substations	91,000		71,000	20,000	
Tap lines, substations and equipment to serve REA and other customers	2,690,000	989,561	52,000	37,000	1,611,439
Other system facilities	1,049,696	692,921	78,518	129,500	148,757
Future electrical facilities	3,814,000			5,000	3,809,000
Missouri River basin and Fort Peck projects:					
Other project costs	754,590	527,395	195,164	16,031	16,000
Consolidated expenditures and credits	−3,511,199	−3,240,055	−18,864	−85,816	−166,464
Total expenditures	339,536,913	128,095,280	20,745,448	24,415,000	166,281,185
Undelivered orders		2,784,488	−2,784,488		
Total obligations	339,536,913	130,879,768	17,960,960	24,415,000	166,281,185
Method of financing:					
Appropriation, fiscal year 1960			16,635,684		
Application of prior year funds			553,346		
Initial underfinancing			771,930		
Appropriation required				24,415,000	166,281,185

NEW FACILITIES PROPOSED FOR FISCAL YEAR 1961

Mr. RABAUT. Using the map, please explain the new lines and facilities which you are proposing for 1961 and explain the need for them.

Mr. DOMINY. Assistant Commissioner Bennett will respond, sir.

Mr. BENNETT. We have, first, the Bismarck-Jamestown 230-kilovolt transmission line No. 2 and the substation additions. Actually, the work will be completed and most of the work in fiscal 1961 is on the substation additions.

That line transmits power from the second powerplant of the Fort Peck project to Jamestown and its main substations. Initial generation at Fort Peck is scheduled for March 1961. So these two are connected together.

On the Dawson County-Bismarck 230-kilovolt line and substation, the transmission line and the terminal facilities are scheduled for completion by March of 1961. This line will transmit the power from the second powerplant at Fort Peck into the main Missouri River Basin grid system.

Mr. RABAUT. We want to know about the new projects and not the old ones.

Mr. BENNETT. Yes, sir. There is the Fort Thompson-Watertown-Granite Falls 230-kilovolt transmission line, which is the stringing of the second circuit. In other words, the poles are already there with one circuit. We are going to string the second circuit.

On the Fort Thompson to Watertown section, that line, as you will recall, was before the Congress last year but was deleted because it appeared to be a little bit ahead of the scheduled generation at the Oahe unit.

Mr. CANNON. You say, on the previous item, the poles are already there.

Mr. BENNETT. Yes, sir. That line has been in existence with one circuit on it. This is the second circuit. Many times you build your lines, your poles are there, and you put only one circuit on the poles and later you can come back and add a second circuit.

Mr. CANNON. What is the lifetime of those poles?

Mr. BENNETT. On a wood pole, when they are treated, the lifetime is indefinite. This happens to be a steel tower line in this instance.

Mr. RABAUT. Is the attachment on the steel tower line when it is originally put in so constructed to take the additional lines afterward?

Mr. BENNETT. Yes, sir. The steel tower has an arm on both sides and you just string one side of it and you come back in later and string the other side.

Mr. RABAUT. It is just a matter of putting the line up?

Mr. BENNETT. That is right.

Now the construction of that second circuit starting in fiscal 1961 is programed to coordinate with the availability of power from the Oahe powerplant, which is scheduled for initial generation in July 1962. That gives them just 1 year to string that second circuit and we think it can be done in that 1 year.

The Jamestown-Garrison 230-kilovolt transmission line, we really started it in fiscal year 1960, but this year we are going to award the construction of the footings and the furnishing and erecting of the steel towers.

Mr. RABAUT. That runs from where?

Mr. BENNETT. From Garrison Dam to Jamestown.

Another new start is the Fort Randall to Fort Thompson, 230 double-circuit line. That line is connected with the Oahe power and

goes into the main substation at Fort Thompson where the power is integrated with the MRB transmission grid.

The line is scheduled for completion in June 1962.

Another new start is the Fort Randall to Sioux City 230-kilovolt transmission line and substation. This also is the stringing of a second circuit on existing towers, and it puts power into Sioux City from the Oahe powerplant. These lines out of Oahe, as I indicated a while ago, are coordinated with the generation at the Oahe powerplant. Those are the new starts.

POWER ALLOCATIONS

Mr. RABAUT. What changes, if any, have been made in power allocations to the various States since last year, and if so, why?

Mr. BENNETT. With the additional generation that has been coming on the line and programed to come on the line since the last allocation, the Department did approve in November 1959 allocation of the additional MRB power.

We have made allotments to preference customers of 998,550 kilowatts of firm power. This is approximately 83 percent of the base amount of 1,181,445 kilowatts, which is the estimated load of these customers for the year 1963. We simply do not have enough power on the line or in sight on the line to meet the full loads of the customers in 1963.

Mr. CANNON. Loads are increasing all the time?

Mr. BENNETT. Loads are increasing all the time; yes, sir.

Mr. CANNON. And will continue to increase?

Mr. BENNETT. Yes, sir.

IOWA TRANSMISSION LINES

Mr. RABAUT. What progress have you made to date on the western Iowa transmission lines?

Mr. BENNETT. We have, with the funds appropriated by the Congress for fiscal year 1960, been doing board studies and designing work for the lines into Iowa. Now, we did run into some problems, Mr. Chairman. The general practice of the Bureau and most other people in the power business is to construct transmission lines on the diagonal or in a straight line. It is much cheaper to build lines straight than it is to build them with many right angles in them. This practice has been followed wherever practical throughout the Missouri River Basin and elsewhere.

Mr. RABAUT. With regard to the cost of these lines when they are built in the fashion you refer to here, where they need these additional guy wires, what is the difference in cost?

Mr. BENNETT. We estimate it would cost us about $2 million more to build this particular set of lines on a parallel basis rather than a diagonal basis.

Mr. RABAUT. Are there many turns in it?

Mr. BENNETT. As near as we can estimate, to follow the property lines as is indicated, what might be desired would increase the total length of the line about 70 miles.

Mr. RABAUT. This follows the property lines? That is the reason for the right angles?

Mr. BENNETT. That would be the reason for it; yes, sir.

I think what happens, Mr. Chairman, under Iowa law there is a provision which permits decisions on locations of transmission lines to be made by a State organization.

Now, it is not mandatory for that organization to require lines to be constructed on property lines or on the parallel, as they term it. But in many, many instances they have made this a requirement on the part of utilities.

Mr. RABAUT. How does this compare with the steel tower? That is a great deal more expensive, is it not?

Mr. BENNETT. I am quite sure the steel tower line would cost considerably more money. I do not have an estimate of what it would cost us.

Mr. RABAUT. Do you have an estimate when it is just a diagonal line?

Mr. BENNETT. On a steel tower line?

Mr. RABAUT. A steel tower as compared to the other.

Mr. BENNETT. I am sure we don't have it here. We have it in our Denver office.

Mr. CANNON. We were not advised of this last year.

Mr. BENNETT. There is a matter that came up recently when we started to purchase right-of-way.

Mr. CANNON. Could it not have been foreseen?

Mr. BENNETT. You will recall a year ago the situation was that we had before us an offer to wheel the power into Iowa. Under the Keating amendment, it was our proposal to wheel the power into Iowa, but the decision was made by the Congress that the Government should construct the transmission lines, so we had not at that time looked into any detail as to what would be involved in the construction of the transmission line.

ROUTE OF POWERLINES

Mr. DOMINY. Mr. Chairman, we don't want to leave the impression that a decision has been made to follow the more expensive route. That has not been made, and I would like to point out that if we can go on the diagonal route as we have laid it out, the total length of the two lines in Iowa would be about 220 miles.

Whereas, if we went on the square, following the property lines, the distance would be about 290 miles, or an increase of 70 miles, or about 32 percent.

Furthermore, we are hopeful that we can convince the farmers of the very valuable Iowa lands which we cross that we are going to disrupt their field operations less with a diagonal line than we would if we followed the property lines, for these reasons:

We can vary the span between poles to a considerable degree on a line of this character. And even where we go diagonally across a farm, we will, upon every possible occasion, locate the poles in an area of his farm that would do him the least harm in disrupting his tillage methods.

If we follow the roads and the property lines with a line of this character and of this voltage, we are going to have to dodge all the buildings and the tree lined roads and things of that kind and we will have to set the poles over in his field in any event.

So we think when we get this all explained, that this desire to have us stay on the roads and property lines will be removed and they will see that it really is to their total advantage to go on the diagonal. We are hopeful we can work that out through negotiation.

USE OF 1960 FUNDS

Mr. CANNON. Have you entered into contracts for materials as yet?

Mr. BENNETT. No, sir; we have not.

Mr. CANNON. A year has elapsed and you seem to have made no progress. Why the delay in contracting for materials when materials are constantly advancing in price?

Mr. DOMINY. The construction schedules for actually getting this work underway——

Mr. CANNON. We gave you ample funds last year to start building this line. How much right-of-way have you secured by this time?

Mr. DOMINY. I don't have the exact figures as to how much we have actually acquired if any. We are busily engaged in the right-of-way acquisition program and these problems that we are discussing arose and it has taken a good deal of negotiation with various interests involved.

Mr. CANNON. Well you know the committee finds it difficult to escape the impression that there has been a little unwarranted delay in this matter.

Mr. DOMINY. The Chairman recognizes, I am sure, that we didn't have the final design, layout or route for this transmission line in Iowa and it has been necessary to map out the routing and to design the lines and to start the right-of-way acquisition.

Mr. CANNON. You were going to give us the schedule. Will you go ahead with the schedule?

Mr. DOMINY. Yes, sir.

PROPOSED CONSTRUCTION SCHEDULE

The latest estimate which we have from the Chief Engineer, taking into account the time required to get the necessary right-of-way, he has a construction schedule which shows the Sioux City-Denison-Creston line, to get under way with construction in March 1961, and completed in September 1962.

For the Denison substation we will order equipment in January 1961, start construction in April 1961, and complete in June 1962.

For the Creston substation, we would order the equipment in April 1961, start construction on the ground in July 1961, and complete in July 1962.

The Sioux City-Spencer line would start construction in March 1961, for completion in June 1962.

For the Spencer substation, the equipment would be ordered in January 1961, the ground construction to start in April 1961, and completion in June 1962.

Mr. CANNON. Can't you begin construction in 1960?

Mr. DOMINY. It has been our experience in building transmission ines that we have to have the right-of-way before we can award the construction contract.

Mr. CANNON. Of course.

We gave you all the money you needed a year ago and urged prompt action on this. Why haven't you been able to secure right-of-way?

Mr. DOMINY. We couldn't start buying the right-of-way until the routing had been mapped out by the engineers, until a design had been made as to the spacing of the poles, the distance between structure and so on. This couldn't be accomplished until after the data necessary to do the engineering work had been accumulated.

Mr. CANNON. You have instances in which you have to go ahead and condemn right-of-way. We have to take action. You expect to have that same difficulty naturally in this one, I take for granted.

Mr. DOMINY. Yes, sir.

Mr. CANNON. When will you take action on that?

Mr. DOMINY. The last report we have on actual progress dated January 1960, is the surveys have been initiated on the Sioux City-Dennison-Creston line. We are 25 percent complete at February 8.

Entry permits to get onto the ground and locate our specific structure locations and so forth has been obtained on 99 percent of the line. Surveys have been initiated on the Sioux City-Spencer line January 5 and are 50 percent complete as of February 8. Entry permits are obtained on 90 percent of the line. Topography has been completed for substations associated with both lines. We have funds allocated for a major portion of the right-of-way in the amount of $530,320 in the fourth quarter of 1960. We really haven't been able to get into position to know where the poles would be set, and to buy the particular piece of ground that we would occupy.

Mr. CANNON. You are making more progress than you show in your justification here. In your justification you only show $350,000.

Mr. DOMINY. Yes, sir; we are certainly pushing it as rapidly as circumstances will permit.

Mr. RABAUT. Mr. Jensen.

Mr. JENSEN. Mr. Chairman, I believe we must be a little tolerant with the Bureau due to the fact that there had been no money expended for surveys and designs before we appropriated the money for design and surveys and the purchase of right-of-way in our 1960 fiscal year appropriation.

That is rather an unusual situation, as the chairman knows.

It was necessary for the Bureau to start from scratch in 1960. Not only to purchase right-of-way, but also to make their surveys and get their designs in order for these lines.

Also, we must remember that the appropriation bill for this purpose was passed late last summer—late in the last session. So I can understand and I believe, Mr. Chairman, that the Bureau has been going forward at a pretty satisfactory rate, when you consider that they had to start from scratch after the bill, the public works bill, was made law late in the last session of Congress.

Mr. DOMINY. May I add just one word there?

Mr. JENSEN. Yes, Mr. Dominy.

Mr. DOMINY. I also want to assure you—this power going into Iowa is coming from the Oahe powerplant which is being built by the corps and we understand that will be available about June 1962—

they will have their producing units in by June 1962—and this construction schedule which I have given, if we can maintain it—and we certainly think we can—will complete the transmission line to coincide with the availability of the power that has been allocated to Iowa.

FUNDING SCHEDULE

Mr. JENSEN. You are requesting in this budget for fiscal year 1961, $1,410,000 for the Sioux City-Dennison-Creston line. Is that right, Mr. Dominy?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. And you are requesting $970,000 for the Sioux City-Spencer line?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. Your estimated total cost of the Sioux City-Dennison-Creston line is $5,660,000, and hence, after the 1961 appropriation has been made, there will still remain to be appropriated to complete that line, $3,900,000?

Mr. DOMINY. That is correct, sir. We are scheduling $3,150,000 of that in fiscal year 1962 and $750,000 carrying over into fiscal year 1963.

Mr. JENSEN. And for the Sioux City-Spencer line, a total estimated cost of $3,230,000, and you are asking for $970,000 for fiscal year 1961, which will leave a balance to complete, $1,930,000. Now how are you dividing that between 1962 and 1963?

Mr. DOMINY. We are scheduling all of that $1,930,000 in fiscal year 1962, at the moment. Now when we get closer to the next year's budget, we may extend some of that over into the first half of 1963, but we are not planning to at the moment.

Mr. JENSEN. You plan now to complete that line in 1962 fiscal year.

LINE ROUTES

Now I was quite surprised when I heard just today in this testimony that you gave that there was a request for those lines to follow the section line. That is the first I had heard of it, Mr. Dominy. From where did that request come? Is that an official request from the G. & T. co-ops?

Mr. DOMINY. No, it comes from the landowners themselves. As we got on the property to start laying out the line, they began to urge us to put it on the property lines and follow the square instead of going on the diagonal.

Mr. JENSEN. Was that request made in a joint petition to the Bureau?

Mr. DOMINY. It was a pretty united concern on the part of the farmers that the diagonal line was going to be more disruptive of their farming, particularly where they checked the corn.

Mr. JENSEN. How far apart will these poles be placed when you run them diagonally? That is a factor that I am sure is important. I can understand why the farmers would hesitate to have poles at close intervals crossing their fields but I wonder if they are cognizant of the fact that the distance between poles is quite a distance. How far do you propose to place these poles apart?

Mr. DOMINY. As I pointed out a minute ago, there is considerable flexibility that we can use in the actual spacing of the poles. Normally they would be about 650 feet apart. There would be about eight structures to a mile but they can be spread 50 or 75 feet one way or the other to coincide with a field border and to help the man in making it as unobjectionable as possible and we propose to do that everywhere we can.

Mr. RABAUT. When you have the type shown in this photograph, what type do you call this?

Mr. DOMINY. That would be a corner with those guy wires. Normally we would have practically none of those if we go on a diagonal.

Mr. JENSEN. That is the point I was going to bring out.

Mr. DOMINY. This other photograph shows the kind of pole we would have if we go on the diagonal without guy wires interfering with the operation.

Mr. JENSEN. Let me ask this question: Were you to follow section lines, it would be necessary to have these guy wires out in the field quite a distance?

Mr. DOMINY. That is right.

Mr. JENSEN. Wouldn't you also have to put the poles out into the field quite a distance in order to give sufficient room to anchor the guy wires?

Mr. DOMINY. Indeed we would and we would have to avoid existing utility lines that are already along the road for local service.

Mr. JENSEN. What is the distance between the points where your guy wires anchor into the ground? The distance between your guy wires, the extent on each side of the poles?

Mr. BENNETT. That can run, Mr. Jensen, depending on the angle, itself, in the neighborhood of 25 to 30 feet.

Mr. JENSEN. So you would need to put the poles at least out into the field 25 or 30 feet and then the inside guy wires would still extend 25 or 30 feet out in the field beyond that.

Mr. DOMINY. That is right.

Mr. JENSEN. I am quite sure most of the farmers who petitioned you did not realize that. Whereas if you run diagonally across the fields, you will not need guy wires except at quite distant intervals.

Mr. DOMINY. That is correct, sir, and I feel very definitely that this is a matter that, with complete communication between us and the farmers so they understand the problem, that they will recognize that the diagonal line is probably in their best interests.

I have urged the regional director to see that some educational meetings are held with the farmers on the route we will be traversing to clear up this problem.

Mr. JENSEN. Knowing farmers as I do, I am sure that they will understand and see the advantage of having these poles go diagonally instead of following section lines.

Now I must say on first flash, that I, too, would feel that the following of section lines was the most satisfactory way. But I can see now, after it is explained, that it is by far the most unsatisfactory way to run the lines.

And by the way, have you had any opposition from the farmers—you buy right-of-way space, don't you?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. Have you had any opposition by any of the farmers in the amount that you can allow for the spaces needed to place these poles in their fields?

Mr. DOMINY. We haven't actually gotten down to making offers yet for the right-of-way. We have been in there only for entry on the farm to locate the line and to determine where the structures would have to be located.

Mr. JENSEN. Well, I am sure that you will experience no problem in that, after you have your man who is going out there explain the advantage of having this line run diagonally.

Mr. DOMINY. I want to assure you that your Iowa citizens have been quite cooperative, as a matter of fact. We have only had six men in 90 miles of line who refused to let us go onto their property to survey the right-of-way for the line. We had six who declined to let us in there voluntarily, out of 90 miles. Now that is very good. We usually get far more refusals than that.

Mr. BENNETT. The G. & T.'s are being very helpful to us. They recognize the problem and they are working on it constantly.

Mr. JENSEN. Well, I was sure they would be.

Now you said, Mr. Dominy, that your plan is to have these lines completed at about the same time that the Oahe power goes on the Missouri Valley grid.

Mr. DOMINY. Yes, sir.

Mr. JENSEN. And you think you can accomplish that?

Mr. DOMINY. I have that assurance from the Assistant Commissioner and Chief Engineer, yes, sir.

WEBSTER UNIT, KANSAS

Mr. RABAUT. Webster unit, $617,000. Insert pages 297 to 299. (The pages above referred to are as follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Missouri River Basin - In Rooks and Osborne Counties in north central Kansas on the South Fork of the Solomon River.

AUTHORIZATION: Flood Control Acts of December 22, 1944 and 1946 | B/C RATIO 1.92 | Date Dec. 1958

LAND CERTIFICATION: March 19, 1957 | DEFINITE PLAN REPORT: Revision approved February 28, 1957.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 18,406,042	Appropriations to June 30, 1959	$ 14,126,223
Net Property and Other Transfers	260,958	Appropriations for F. Y. 1960	2,793,375
Cash Advances--Non-Federal	6,000	Appropriations to Date	16,919,598
Adjustment	22,000 1/	Initial Underfinancing F. Y. 1960	
		Appropriations Required for F. Y. 1961	617,000
Total to be Allocated	$ 18,695,000	Balance to Complete after F.Y. 1961	$ 869,444

ALLOCATIONS 5/

Irrigation	$ 10,883,000
Power	
Contributions 2/	6,000
Flood & Nav.	7,289,000
Recreation	38,000
Fish&Wildlife	479,000
Total	$ 18,695,000

REPAYMENT

Amount Repaid by Irrigators	$ 1,601,500
Amount Repaid by Power	9,319,500
Amount Repaid by M. & I. Water	
Contributions 2/	6,000
Non - Reimbursable	7,768,000
Total	$ 18,695,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 1,281	Payment Capacity per Acre	$ 9.28
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 188	O. & M.	$ 3.64
By Power Revenues	1,093	Construction	4.78
By M & I Water Users		Total	$ 8.42

STATUS OF REPAYMENT CONTRACT: Webster Irrigation District No. 4, executed April 24, 1957 and validated October 22, 1957.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Webster Dam and Reservoir	260,700 A.F	100	12-59	3/ Temporary Camp		100	-
Woodston Diversion Dam	14.0'x151.0'	92	12-59	3/			
Osborne Canals, Laterals Drains, Electric Service Lines	8,500 ac.	54	6-62	4/			
Permanent Operating Facilities		0	12-61	3/			

Acreage Full Supply 8,500 | Supplemental Supply None | Total Acres 8,500 | Power kw None

Region	Date	Project and State
7	1/18/60	Missouri River Basin Project, Webster Unit, Kansas

B3-297

[1] Represents $22,000 capitalized O.M. & R. to be financed with O. & M. appropriation.
[2] Non-Federal cash advance from Kansas State Highway Department for cost of extending siphon barrels to enable future widening of U.S. Highway No. 24.
[3] Essentially complete.
[4] Essentially complete except for drains.
[5] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$10,889,000	$10,883,000
Flood control	7,289,000	7,289,000
Recreation	38,000	38,000
Fish and wildlife	479,000	479,000
Contributions		6,000
Total to be allocated	18,695,000	18,695,000

No actual change in basic allocation. An amount of $6,000 contributed by the State of Kansas covering increased length of siphon barrels to enable future widening of State roads has been set out as a separate item from the irrigation allocation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.62.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.65.

JUSTIFICATION

Description.—The Webster unit is a multiple-purpose development consisting of a storage reservoir, diversion dam, canal, laterals, and drains. This development will provide irrigation for 8,500 acres of irrigable land, control floods originating in the upper reaches of the south fork of the Solomon River, and furnish needed fish and wildlife conservation together with recreational opportunities.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Osborne system—Canal, laterals, drains, and electric service lines, $587,000.—To complete the construction of the Osborne Canal, laterals, and electric service lines, and to collect field data for Osborne drains.

Permanent operating facilities, $29,000.—For purchase of equipment for the irrigation district.

Other project costs, $4,000.—For Settlers Assistance program.

Consolidated expenditures and credits, —$3,000.—Represents Solicitor's Office charges which will be financed from appropriation to that office.

Changes in total obligations

1960 congressional justification	$18,422,042
1961 congressional justification	18,412,042
Decrease	10,000

NOTE.—Decrease due to minor estimate adjustments.

Schedule of construction programs, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Webster Dam and Reservoir	$11,678,000	$11,655,390	$3,000	.....	$19,610
Woodston diversion dam	884,000	797,311	16,000	.....	70,689
Osborne system—canals, laterals, drains, and electric service lines	5,932,000	1,837,386	2,806,009	$587,000	701,605
Permanent operating facilities	182,700	43,700	50,000	29,000	60,000
Temporary camp	62,480	62,480	.....	.....	.....
Service facilities, depreciation and salvage	−106,189	−106,180	.....	.....	.....
Other project costs	40,000	13,814	4,000	4,000	18,186
Consolidated expenditures and credits	−260,958	−253,952	−3,360	−3,000	−646
Total, expenditures	18,412,042	14,049,949	2,875,649	617,000	869,444
Undelivered orders	.....	45,462	−45,462	.....	.....
Total, obligations	18,412,042	14,095,411	2,830,187	617,000	869,444
Method of financing:					
Appropriation, fiscal year 1960	.....	.....	2,793,375	.....	.....
Application of prior year funds	.....	.....	36,812	.....	.....
Appropriation required	.....	.....	.....	617,000	869,444

Mr. RABAUT. No questions.

YELLOWTAIL UNIT, MONTANA

Yellowtail unit, $2,500,000. Insert pages 300 through 304. (The pages above referred to are as follows:)

PF-63
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Missouri River Basin, Southeastern Montana in Big Horn County. The Yellowtail Damsite is located on the Bighorn River 45 miles southwest of Hardin, Montana

AUTHORIZATION Flood Control Act of December 22, 1944. B/C RATIO 1.77 4/ Date 1-19-60

LAND CERTIFICATION Hardin unit scheduled prior to award of first construction contract. DEFINITE PLAN REPORT Approved by Comm. 11,10,50 Revision Scheduled Dec. 1960

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 107,491,129	Appropriations to June 30, 19 59	$ 2,966,129
Net Property and Other Transfers	1,808,871	Appropriations for F. Y. 19 60	--
Cash Advances--Non-Federal		Appropriations to Date	2,966,129
Adjustment	1/ -36,448,000	Initial Underfinancing F. Y. 19 60	--
		Appropriations Required for F. Y. 1961	2,500,000
Total to be Allocated	$ 72,852,000	Balance to Complete after F.Y. 19 61	$ 102,025,000

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE 2/	
Irrigation	$	Amount Repaid by Irrigators	$ --	Irrig. Invest. per Acre	$
Power	65,983,000	Amount Repaid by Power	65,983,000	Repayment of Investment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$
Flood & Nav.	6,261,000			By Power Revenues	
FWL	608,000			By M & I Water Users	
Recreation	500,000	Non - Reimbursable	6,869,000		
Total	$ 72,852,000	Total	$ 72,852,000		

Payment Capacity per Acre	$
Annual Charges	
O. & M.	$
Construction	
Total	$

STATUS OF REPAYMENT CONTRACT:

PRINCIPAL FEATURES

	Size or Cap.	Completion 6-1-60	Completion Date		Size or Cap.	Completion 6-1-60	Completion Date
Yellowtail Dam and Reservoir	1,375,000A.F.	3/ 6	9/65				
Yellowtail Afterbay Dam	36' X 1320'	--	10/64	Permanent camp		--	5/66
Yellowtail Powerplant and Switchyard	200,000 kw	--	9/65	Temporary Camp		--	12/62
Minimum Basic Health & Safety Facilities Upstream Fish Rehab.	--	--	6/66				
Permanent Operating Fac.		--	10/65				

Acreage Full Supply -- Supplemental Supply -- Total Acres -- Power kw 200,000

Region	Date	Project and State
6	1/18/60	Missouri River Basin Project, Yellowtail Unit, Montana-Wyoming

BR-300

[1] Consists of—

Interest during construction associated with commercial power	$3,562,000
Irrigation allocation assigned to Hardin unit and Yellowstone pumping units	-24,530,000
Interest-free power investments assigned to other units of Missouri River Basin project (20 percent)	-15,480,000
Total adjustments	-36,448,000

[2] No irrigation will be directly provided and no crops are involved.
[3] Includes right-of-way acquisition.
[4] Benefit-cost ratio shown on project data sheet is based on 2½-percent interest. Benefit-cost ratio based on direct benefits only and 2½-percent interest is 1.77. Benefit-cost ratio based on total benefits and 3-percent interest is 1.62.

JUSTIFICATION

Description.—The multipurpose Yellowtail Dam will be constructed on the Bighorn River in Bighorn County, Mont. It will be a concrete arch structure with a reservoir capacity of 1,375,000 acre-feet and will regulate runoff for irrigation, flood control, and power generation. The powerplant, at the toe of the dam, will have an installed nameplate rating of 200,000 kilowatts. The power is needed to supply existing and rapidly expanding power needs in southeastern Montana and northeastern Wyoming for irrigation pumping, REA, and commercial use. Benefits will also be provided for fish and wildlife, recreation, and sediment control.

Appropriation title.—Construction and rehabilitation.

Work proposed, fiscal year 1961

Yellowtail Dam and Reservoir, $750,000.—The program provides for preconstruction work, the award of the construction contract, and the start of construction on the Yellowtail Dam. Work will consist of grading and surfacing of the service road to the dam from the camp, payments to county for improvements to 10 miles of existing county road leading to the unit; and beginning excavation for the foundation of the dam. Right-of-way below the damsite will be purchased.

Yellowtail powerplant and switchyard, $275,000.—For preconstruction on powerplant and switchyard facilities and start of construction under dam contract of access road to powerplant site at the base of the dam.

Permanent operating facilities, $442,500.—This amount will provide for the initiation of construction of the operating facilities to be used by construction forces during the construction of the unit and will later be used in the permanent operation of the unit. These include access road, combination shop and fire station, warehouse and garage, and operating tools and equipment.

Permanent camp, $313,000.—Provides for initiation of construction of housing facilities and appurtenant streets and utilities. These facilities will be used by construction forces and later for operation and maintenance personnel as follows:

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Operation and maintenance houses: 15 to be used during construction and 7 additional residences to be constructed later	$440,000	$10,000	----------	$200,000	$230,000
Streets, utilities, and miscellaneous	259,000	10,000	----------	113,000	136,000
Total	699,000	20,000	----------	313,000	366,000

Temporary camp, $575,000.—The program provides for the purchase and erection of 16 two-bedroom transa houses and partial payments on purchase of 32 transa houses to be delivered in fiscal years 1962 and 1963 and 20 trailers to be erected in advance of the permanent camp, streets, and service utilities. Construction of garages and community washhouses, streets, and utilities in temporary area will be initiated.

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Transa houses (63)	$791,000	$27,000	----------	$347,000	$417,000
Trailers (20)	114,000	4,000	----------	110,000	----------
Streets, water and sewer systems, walks and lights	265,500	9,000	----------	98,000	158,500
Washhouses (5) and 5-stall garages (16)	106,000	----------	----------	20,000	86,000
Total	1,276,500	40,000	----------	575,000	661,500

Service facilities, depreciation, and salvage, $144,500.—For the initiation of construction of temporary warehouses, temporary garages, temporary administration building, laboratory, and the purchase of automotive and other equipment.

Changes in total obligations

1960 congressional justification	(1)
1961 congressional justification	$107,491,129

[1] Not included in the fiscal year 1960 congressional justifications.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Yellowtail Dam and Reservoir	$76,645,000	$4,408,523	$19,000	$750,000	$71,467,477
Yellowtail Afterbay Dam	1,750,000	24,690			1,725,310
Yellowtail powerplant and switchyard	28,925,000	611,470		275,000	28,038,530
Minimum basic health and safety facilities and upstream fish rehabilitation	565,000				565,000
Permanent operating facilities	957,000	7,698		442,500	506,802
Permanent camp	699,000	20,000		313,000	366,000
Temporary camp	1,276,500	40,000		575,000	661,500
Service facilities, depreciation and salvage	−1,517,500	9,500		144,500	−1,671,500
Consolidated expenditures and credits	−1,808,871	−2,170,752	−4,000		365,881
Total expenditures	107,491,129	2,951,129	15,000	2,500,000	102,025,000
Undelivered orders					
Total obligations	107,491,129	2,951,129	15,000	2,500,000	102,025,000
Method of financing:					
Appropriation, fiscal year 1960					
Application of prior year funds			15,000		
Appropriations required				2,500,000	102,025,000

Mr. RABAUT. Explain this new construction start, Mr. Dominy.

Mr. DOMINY. This is one of the backbone power units of the whole Missouri River Basin multiple-purpose project. The multiple-purpose Yellowtail Dam is to be constructed on the Big Horn River in Big Horn County, Mont. It will back water up through Montana and into Wyoming. It will be a concrete arch structure with a reservoir capacity of 1,375,000 acre-feet and will regulate runoff for irrigation purposes for flood control, and power generation.

The powerplant at the toe of the dam will have an installed nameplate rating of 200,000 kilowatts. The power is needed to supply existing and rapidly expanding power needs in southern Montana, and northern Wyoming and for irrigation pumping for REA's and for commercial use. Benefits will also be provided for fish and wildlife, recreation and sediment control.

The program for this year is a nominal one which would permit us to complete the engineering designs and be ready to award a contract at the end of the fiscal year and this money would be used for access road and permanent camp facilities required during the construction of the dam as well as during its operation.

REPAYMENT OF FEDERAL INVESTMENT

Mr. RABAUT. Is this project necessary to produce power revenues to pay out the Missouri River Basin project?

Mr. DOMINY. Yes, sir. The Missouri project payout was predicated on the construction of Yellowtail and the availability of the power revenues from it.

Mr. RABAUT. In how many years will power revenues pay out with interest the Federal investment of $107,491,129 in this project?

Mr. BENNETT. The power revenues from the Missouri River Basin project will pay out the power allocation of this unit which is $65,483,000, plus an assigned portion of the transmission division cost in 48 years, with interest at 3 percent. The remaining part is associated with allocation to irrigation which goes into the total Missouri River Basin payout schedule.

Mr. RABAUT. In addition to this, how many years will the project operate and how much revenue will be produced at current prices to help carry the Missouri Basin irrigation subsidy?

Mr. BENNETT. With regard to how many years it will operate, we try to maintain out of our gross revenues an item for replacement which is sufficient to keep the reservoir operating, or the powerplant operating, in theory, in perpetuity.

Now, after payout of the power investment, the net revenues which are available to go into the total Missouri River Basin fund available to aid irrigation will amount to about $3,209,000 per year.

Mr. DOMINY. I would like to point out that this particular project will be producing power and irrigation benefits for a long and indefinite period. It is on a river that has a number of structures above it and it will not become silt laden to the extent of depreciating its effectiveness over long periods of time and as Mr. Bennett says our rates are predicated on replacement reserves to replace any of the machinery as it reaches the end of its useful life.

DELAY OF PROJECT

Mr. RABAUT. How seriously would the long-range economic speculation be upset if construction on this project was to be delayed for a year or two?

Mr. BENNETT. That is a very difficult thing to answer, Mr. Chairman. The value, of course, of the power in the system is tremendous. As I indicated in response to questions a little earlier on the Missouri River Basin power allocations, we have been able to allocate so far only 83 percent of the needs. That is simply all the power we have. Now, that is predicated not upon Yellowtail being in the system. However, with Yellowtail in the system and with its power flowing into the eastern division, we could probably increase that 83 percent some. So I think that it is very important from that standpoint alone in order to help meet those growing needs of the power customers to have Yellowtail on the line as quickly as we can obtain it.

Mr. DOMINY. As far as the economic analysis of the total project is concerned, a delay of a year or two would not be critically serious because the longer we delay Yellowtail the longer we delay the irrigation features immediately below it which would require power revenue assistance in order to be fully reimbursable. So I think that is pretty much of a standoff there, as far as the effect on the general feasibility of the payout of the entire Missouri River Basin is concerned if this were to be delayed.

I would like the committee to recollect that this is one that has been waiting in line to be placed under construction for a good long while. There was actually an appropriation made to start construction of this about 6 years ago and because of right-of-way problems with the Indians that money was never used for this purpose. It was later reprogramed for other Missouri Basin activities. So the people who

are waiting for the benefits of Yellowtail have already been waiting a good long while after the dam was investigated and found to be feasible.

MARKET AREA FOR YELLOWTAIL POWER

Mr. PILLION. Where is the general area where the power from this project will be supplied?

Mr. DOMINY. It would be marketed in our western division of the Missouri River Basin area, and would be used primarily in southeastern Montana and northern and northeastern Wyoming.

Mr. PILLION. What are the largest cities in the area?

Mr. DOMINY. Billings, of course, is the largest city in Montana. Billings has 60,000 people at the moment.

Mr. PILLION. They have electricity in Billings, do they not?

Mr. DOMINY. Indeed they do.

Mr. PILLION. Who supplies it now?

Mr. BENNETT. Mr. Pillion, as far as the town of Billings itself is concerned they are supplied at the moment by the Montana Power Co.

The preference customers within the western division, and very shortly after we have transmission facilities, those customers in the eastern division will take all of this power. This power will run as far south as the Denver area where there is a considerable number of preference customers.

Mr. PILLION. How far is Denver?

Mr. BENNETT. It is around 450 miles, or more.

Mr. PILLION. How much do you lose in transmitting?

Mr. BENNETT. You don't transmit directly from here into the Denver area. You have just south of here the Boysen plant, and the Glendo and Fremont plants, all of which go into the line. We generally figure transmission losses at about 7 percent.

Mr. PILLION. Actually, then this power isn't going to Denver, is it?

Mr. BENNETT. Not to the city, as such, no. The city of Denver has a power source.

Mr. PILLION. And the area around the city?

Mr. BENNETT. We serve now——

Mr. PILLION. I am not talking about what you serve, if you don't mind. I am talking about what this power project is intended to serve. It won't really serve Denver, will it?

Mr. BENNETT. Not the city, no.

Mr. PILLION. Nor the industrial area around it.

Mr. BENNETT. Not the industrial area; no, sir.

Mr. PILLION. Now, Billings being an industrial area—I would consider it to be more of a rural area with ranches, et cetera, in that area, it is now fully and adequately supplied by the Montana Power Co., is it not?

Mr. BENNETT. The city of Billings; yes, sir.

Mr. PILLION. And the area around it? The Montana Power Co. doesn't supply Billings alone does it, sir?

Mr. BENNETT. I am trying to recall at the moment whether we have any preference customers right around Billings. We may have.

Mr. PILLION. The bulk of power and light is supplied by the Montana Power Co., is it not?

Mr. BENNETT. That is correct.

Mr. PILLION. A company that pays taxes locally?

Mr. BENNETT. Yes, sir.

Mr. PILLION. Pays taxes to the State of Montana and helps support the local government?

Mr. BENNETT. Yes, sir.

Mr. PILLION. And if this power were to go on the line, the local governments would not receive the same proportion in taxes, would they, in proportion to the power supply?

Mr. BENNETT. That would be very difficult to answer because the availability of the power—this Federal power—to the preference customers does, of course, benefit them and they in turn by having that benefit also pay taxes.

Mr. PILLION. But there is no question that the Montana Power Co. is ready and willing to supply all present needs and immediate future needs of the power in the area?

Mr. BENNETT. So far as the municipalities, that type customer is concerned, the Montana Power Co., I am sure, will take care of them from here on out. As a matter of fact, they are even buying power from us.

Mr. PILLION. Then this is intended then not to supply the ordinary citizen in the area because they are now supplied adequately; is that true?

PREFERENCE CUSTOMERS

Mr. BENNETT. This is power intended to go to the preference customers.

Mr. PILLION. That is what I am getting at.

This is intended to supply another class of citizen, a class known as the preference customers?

Mr. BENNETT. That is correct.

Mr. PILLION. Who have a preferred status in electricity.

Who is the preference customer?

Mr. BENNETT. The preference customers are defined in the law somewhat loosely as public body types. Now, that can be generation and transmission organizations, it can go to REA's, it can be municipalities under certain conditions. They are that type of an organization.

Mr. PILLION. And of those kinds of organizations, how many use this power right as of now? Who can't get power and don't have power right now?

Mr. BENNETT. As of right now, 1960, most of them are served in their loads and most of them buy from our present Federal system.

Mr. PILLION. At the present time everybody in the area including preference customers are adequately supplied with their needs for electricity; is that right? Their present needs I am talking about.

Mr. BENNETT. Generally speaking, that is true. There are a few instances where there is an REA having a little trouble meeting its present loads, but this power, Mr. Pillion, you recognize would not be on the line for about 5 years.

Mr. PILLION. The total cost of this is $107 million. There is taken out of the cost and returns to taxpayers an allocation of $24 million for the Hardin unit and the Yellowstone pumping units.

HARDIN UNIT

Now, you have definite present assurances that the proposed related Hardin irrigation project will be feasible—or ever will be built?

Mr. DOMINY. We don't have the assurances now that it will ever be built, of course, because we don't have the irrigation organization nor the repayment contract nor the authority from Congress for appropriations to start construction. We do have our definite plan report and detailed information necessary to a definite plan report far enough along, Mr. Pillion, to where we know that the sizable land areas embracing what has been known as the Hardin unit, are suitable for sustained agricultural production under irrigation.

We also know that there are a number of tracts of land adjacent to the river below Yellowtail Dam in Montana that would respond well to irrigated agriculture.

Mr. PILLION. Yes.

Now that, of course, would produce more agricultural products and increase the total agricultural supplies in the country, is that right?

Mr. DOMINY. That, to a degree, is correct, sir.

Mr. PILLION. And it is well known that the agricultural supply is greater than the demand and you get a depreciation of the prices the farmers receive—that is a well accepted principle of economics, is it not?

Mr. DOMINY. On an immediate contemporary consideration, that is true.

Mr. PILLION. And there is no foreseeable need in the next 5 years, is there, of any shortage of food products in this country as we see it now?

Mr. DOMINY. I certainly wouldn't anticipate any shortages of food or fiber in the next five years; no, sir.

Mr. PILLION. Are your transmission lines included in this?

Mr. Bennett. Transmission lines are not included in the $107,491,000 The costs of transmission lines are carried in the transmission division.

INDIAN LANDS

Mr. PILLION How much of the Hardin proposed irrigation project is in Indian lands where it would not be repayable at all?

Mr. BENNETT. About one-half of the lands are in Indian ownership but about two-thirds of the lands are within the reservation boundaries.

Mr. PILLION. And they would not repay anything at all, would they? They would not pay the same irrigation payments, would they?

Mr. DOMINY As long as they remain in Indian ownership the construction obligation would be deferred; yes, sir, and that would be about half of the lands at the moment.

Mr. PILLION. And your $24 million, does that include the Indian lands for the allocation of cost for that Hardin irrigation project?

Mr. DOMINY. It would include all of the lands benefited.

Mr. PILLION. But you would not get repaid, then, the $24 million.

Mr. DOMINY. The part that would be attributable and apportionable to land in Indian ownership would be deferred; yes, sir.

Mr. PILLION. That is right, and even the lands that would be subject to repayment would be repaid without interest to the Federal. Government, is that true?

Mr. DOMINY. That is true, sir, the irrigation allocation; yes, sir.

POWER PRODUCTION TO MEET LOAD GROWTH

Mr. PILLION. Does the Bureau consider itself to have a responsibility imposed by Congress of being an agency that is responsible by reason of its license and grant of authority, to condemn, et cetera, and does the agency consider it has responsibility to serve the increased desires of customers in that area for this type of power or electricity?

Mr. DOMINY. Let me put it this way, Congressman Pillion: We do not consider ourselves in the utility capacity, to be undertaking to produce the power to meet the load growths of our customers. Not at all.

In other words, as we see the load growth extending beyond what we can supply, we don't immediately start to plan a supplemental addition of steam or hydro to fill that need.

We do consider ourselves under direction of Congress to be the agency, particularly in the Missouri River Basin under this special authorization to be exploring economic and feasible water resource development projects of a multiple-purpose nature that are beyond the scope and range of an undertaking that a private agency or State agency could take.

Mr. PILLION. Immediately after I asked the question I thought it was unfair because we authorized it and I wanted to withdraw it but you had already started it.

Mr. DOMINY. Mr. Pillion, you are never unfair.

Mr. PILLION. No further questions.

LOWER MARIAS UNIT

Mr. MAGNUSON. Could you refresh my memory on the Lower Marias unit, Mr. Dominy? I see we spent $21 million on it and now it is stopped.

Mr. DOMINY. This was a project undertaken during this same period of time about which I spoke earlier today after we had some serious flooding in the Missouri River Basin, and the Congress was willing to undertake the construction of a number of multiple-purpose reservoirs that had significant flood control value in advance of definite assurance that the irrigation features were desired by the proposed landowners of the area to be served.

We did build the Tiber Dam which has a significant reservation for flood control and with substantial space for water conservation for irrigation storage. At the time we undertook that construction we had an irrigation district formed covering about 125,000 acres and had resolutions from the board of directors—the official representatives of that district—that they did want to irrigate and would negotiate a repayment contract. We fully expected that as the dam was under construction, we would be able to make plans to construct the irrigation facilities to serve those 125,000 acres.

WITHDRAWAL OF LANDOWNERS

However, the farms are fairly large units that are farmed under dryland wheat culture, and they were doing pretty well. When it came to actually voting on a contract a substantial portion of the landowners indicated they wanted to be allowed to get out of the district and not participate. At that time the district was reduced to

about 87,000 acres. Even on the reduced basis, a contract acceptable under our repayment ability standards could not be negotiated. So we made no expenditure at all on the irrigation features other than the allocation to irrigation that was assigned to the dam above the size we would have built if we had been building strictly for flood control.

FUTURE PROSPECTS

Mr. MAGNUSON. What are the prospects for the future?

Mr. DOMINY. As an agriculturalist, I would forecast that as long as there is an agricultural program which places a price support under wheat at a level that is profitable to the dryland wheat farmer, with improved tillage they have now, that even in dry years, with good prices prevailing, the owners would prefer to remain in dryland wheat production rather than to shift over to irrigated agriculture. And I suspect this area will not be irrigated until such time as the demand for the specialty crops grown on irrigation is such that it would be more economic for the farmers to shift than to stay in dryland wheat.

FLOOD CONTROL

Mr. MAGNUSON. So in this instance the Bureau of Reclamation is really solely in the flood control zone?

Mr. DOMINY. We operate the dam for the full benefits of flood control obviously since we have now no requirement to store water specifically for irrigation. The dam is serving multiple-purpose uses in recreation, fish and wildlife, and flood control but is not serving a direct function for irrigation.

Mr. MAGNUSON. And no power features?

Mr. DOMINY. Not at Tiber Dam, no, sir.

Mr. MAGNUSON. That is all, thank you.

ALLOCATION OF COST OF DAM

Mr. JENSEN. Mr. Dominy, Yellowtail Dam is estimated to cost $107,491,129. What part of that is power supposed to pay?

Mr. DOMINY. The allocation to power is $65,483,000, including interest during construction. Power will pay with interest that amount plus the $500,000 recreation allocation, or a total of $65,983,000.

Mr. JENSEN. Who pays the rest of it?

Mr. DOMINY. There is a flood control allocation of $6,261,000, which is nonreimbursable; a fish and wildlife allocation of $608,000; and as just stated a recreational allocation of $500,000.

Mr. JENSEN. How much is charged to irrigation?

Mr. DOMINY. There is an allocation to irrigation in the amount of $24,530,000.

Mr. JENSEN. We don't know at this time whether that irrigation project is economically feasible or not. Is that a fair statement?

HARDIN UNIT IRRIGATION

Mr. DOMINY. We are able to assure you that our investigations indicate the feasibility of the Hardin unit as well as the additional Yellowstone pumping units, yes, sir.

Mr. JENSEN. You say your investigations indicate. You have not completed those investigations?

Mr. DOMINY. Well, they are practically complete. Can you give the exact status of them, Mr. Burnett?

Mr. BURNETT. All of the investigations on the Hardin unit are complete. We are finishing our report on that now. We haven't received the report from the region, but the benefit-cost ratio on the Hardin unit will be 1.48 to 1.

Mr. JENSEN. Do you propose to have the investigation completed on your irrigation part of this project before we mark up the bill?

Mr. DOMINY. Well, as Mr. Burnett says, we have all of the field-work done on the Hardin unit. The data are complete. It is just a matter of putting it in the final report.

Do you have a statement on when that will come in, Mr. Burnett?

Mr. BURNETT. We are expecting the report any day. It is practically completed.

Mr. DOMINY. The answer, Mr. Jensen, is that we can give you the economic data pertaining to the feasibility of the project before the time you are marking up the bill, yes, sir.

TEN-YEAR PROVISO ON SURPLUS CROPS

Mr. JENSEN. Does that proviso which we place in all irrigation authorization bills now, which provides that a 10-year period must expire before crops in surplus can be raised on these irrigated lands for which the Federal Government appropriates the money, apply?

Mr. DOMINY. Increased acreage of crops in surplus has been prohibited under some project authorizations. That would not be applicable to this one because the authorization dates clear back to the Flood Control Act of 1944 and that limitation was not included, sir.

Mr. JENSEN. I was quite sure that that was the situation.

YELLOWTAIL DAM PAYOUT

Now, would you say, Mr. Dominy, it is necessary to build this Yellowtail Dam in order to replenish the Missouri Valley fund so as to make the project pay out according to law.

Mr. DOMINY. No, sir, I wouldn't use any such strong terms as "necessary." I have indicated that this was one of the power-producing units in the plan as authorized and that since it will operate for a long period of time it would ultimately be contributing no inconsiderable amount of power revenues as an aid to the irrigation of the overall Missouri River Basin undertaking.

I went on to say, however, that since the irrigation units on the Bighorn and Yellowstone Rivers below Yellowtail Dam would likewise be necessarily delayed if Yellowtail Dam were delayed, that that would be an offsetting factor as far as any importance in the financial payout of a delay on construction of Yellowtail is concerned.

Mr. JENSEN. Have you estimated the cost of the power to be produced at Yellowtail powerplant?

Mr. BENNETT. Yes, sir, Mr. Jensen. On a 3-percent-interest basis, which is what we use in the Missouri River Basin, this particular project, the firm commercial rate of 5½ mills and the nonfirm at 3

mills and the sale of peaking capacity show a payout in 48 years. Now, this includes not only the allocation to power but it also includes an assignment of some $26 million from the transmission division, all paid out in a 48-year period. So, under the usual concept that has been utilized occasionally of the at-site cost, it is for all practical purposes identical with the average Missouri River Basin rate.

MISSOURI RIVER BASIN PAYOUT

Mr. JENSEN. The thing that has always bothered me when we appropriate for these additional great and expensive projects in the Missouri River Valley such as this is the fact that when the Missouri River Basin program was first undertaken, which was about 15 years ago, the Bureau estimated that it would require a 5½ mill-per-kilowatt charge in order for that great project to pay out.

Since that time, the cost of labor and material and these great generating facilities has increased over 100 percent. I am sure the record will show that that statement is correct.

Mr. DOMINY. Yes, sir.

Mr. JENSEN. Yet, we have an agency come before us and say that 5½ mills will still pay out. Now, where is the secret?

Mr. DOMINY. This elasticity, Mr. Jensen, is explainable pretty largely by the fact that we have deferred and held back—not deliberately, but by reason of many facts—the major irrigation developments in the Missouri River Basin.

At the time the original 5½-mill payout was estimated—as you report at lower cost—we certainly intended to build the Garrison diversion unit of a million acres with a sizable power support requirement many years earlier, and that hasn't happened. As a matter of fact, we didn't build the lower Marias—the 125,000 acres there. We didn't build the irrigation at Cedar Bluff and at Bonny. Therefore, the irrigation support as a power burden hasn't come into play nearly as soon or nearly to the extent that was originally contemplated in these payout analyses.

Mr. JENSEN. Well, may I say, Mr. Dominy, I hope you will prove to be right. This situation that I have just described does not only prevail on the Missouri River project; it prevails in most every project that we are asked to appropriate money for.

I hope, of course, that you would produce power for even less than 5½ mills on the Missouri River because I certainly don't want my people to pay any more than is necessary. But, still, with all that explanation which you just gave, I am still wondering if your figures are going to "hold water," as we say out on the farm.

Mr. DOMINY. Mr. Bennett may have some additional comments which may add to our edification on this point.

Mr. BENNETT. I think we should add a couple of points, Mr. Jensen. This is a matter of great concern to us. We recognize fully what you say has happened.

Now, there are some pluses and minuses working together here. It is true that the costs have gone up. In response to an earlier question I stated the allocation to power in the total MRB system has doubled since 1950. That is in relationship to what you said.

On the other hand, we find and are fully expecting that very shortly now we shall start to sell peaking capacity which is an item that has

not been considered up until just recently in our payout analyses. We are getting requests—I won't quite say "daily," but quite frequently now, to purchase straight peaking capacity from us at a value of $15 per kilowatt. That is a plus item.

On the other hand, the original rates, as I remember the situation, contemplated about a 35-year power pay-out period.

In other words, the rates were somewhat higher than they needed to be for a 50-year pay-out period which the law authorized. So some of the slack has now been taken up by taking the pay-out period from a 35-year to a 50-year period. So you have on that side a plus.

Mr. JENSEN. Your figures, of course, are based entirely on the value of a great quantity of peaking power that is produced by these great dams.

Now, is it not a fact that were it not for the thermopower that is produced by private utilities, municipalities and REA's, that you mix with this peaking power—isn't that the reason for your contention that this hydropower becomes economically feasible and isn't that the reason that you have determined that you can still sell this power for 5½ mills and pay out according to law?

Mr. BENNETT. It is certainly correct that the peaking capacity has no value unless whoever wants it has other power in their system and which is basically steam generation.

We had just about a month ago one of our present customers who wants to purchase from us the entire 180,000 kilowatts of peaking capacity that they see coming up in the Missouri River System. We can't sell it to them today because we need all of our capacity today to be associated with the energy we can produce. But as the loads increase, as there gets to be more and more steam in the area, constructed by utilities, constructed by G. & T.'s and by such organizations as the Nebraska Public Power Service, as they get more and more steam, in my judgment hydro is going to switch over to a much greater peaking operation and as such it is a more valuable commodity in the system than it is to simply meet loads.

Mr. JENSEN. Of course, as you increase your hydro peaking capacity, you must also follow along with thermal power to mix with your peaking power.

Mr. BENNETT. Well, it has no place to go unless somebody else has the thermal.

MONTANA POWER CO.

Mr. JENSEN. Let's talk for a moment about the Montana Power Co.:

The Montana Power Co. has, as I am sure the record will show, and I am sure you gentlemen will agree, they have built more lines, more skim milk lines, so to speak, all over the State of Montana, furnishing power to the farmers and to the people in many places where they lost money on the power so delivered. However, I have the highest regard for the Montana Power Co. because, I think the record will show, that there is but a very small percent of the farmers in Montana who do not today have electric power and in a sufficient quantity to meet all their needs.

I would question whether there are many private power companies that have the fine record that the Montana Power Co. has. In their great desire and determination to furnish power to everybody in that

State who needed power and at rates which are very acceptable to all their users. You never hear anyone complain in the State of Montana about power rates.

The Montana Power Co. is ready, willing, and able to furnish all the power that the people in that great State could possibly use in not only the immediate future, but in the far distant future. And that is why I hesitate to give my approval to this enormous expenditure for the construction of Yellowtail Dam.

The Montana Power Co. pays local, State, and Federal taxes; they are civic minded. Their great ambition is to do good for the people of Montana. They are civic minded to the *n*th degree. I don't believe you can find a person in Montana—and I have traveled that State quite extensively—who will not praise the Montana Power Co. to the high heavens.

Now, to go in and spend all this money of the American taxpayers—who are going to have to pay a large part of this bill over the long pull—just doesn't make good sense to me. Especially when flood control is a minor factor in this area.

Now, if anybody would like to take time to argue that point, to argue the points that I have just made, I will sit and listen.

Mr. DOMINY. I think you have very ably expressed your point of view with regard to this, Mr. Jensen. I don't have any disagreement with the statements you have made. This is here in the budget recommended by the Department and the Bureau of Reclamation and the administration as a fully documented and justified unit of the overall water resource development program for the entire Missouri River Basin. Had we not found it to fit the standards as laid down, as understand it by Congress in the Flood Control Act of 1944, it would not be here, so recommended and endorsed.

ESTIMATED POWER REVENUE

Mr. JENSEN. What is the estimated average per kilowatt-hour revenue for the Yellowtail project?

Mr. BENNETT. The net revenue or the gross?

Mr. JENSEN. You can furnish both of those for the record.

(The information requested follows:)

ESTIMATED GROSS AND NET KILOWATT REVENUE—YELLOWTAIL UNIT

The estimated average annual gross revenue over a 50-year period is $4,278,720 and the estimated average annual net revenue over a 50-year period is $3,373,970 based upon the kilowatt-hour rates.

The estimated average gross rate per kilowatt-hour over a 50-year period is 4.8 mills and the estimated average net rate for a similar period is 4.4 mills. The above rates do not include any revenue for sale of peaking power.

FEDERAL FISCAL SITUATION

Mr. PILLION. I know the frame of reference in which you administer this agency is somewhat different from the frame of reference that we look at these projects from this side of the table but I am sure that your department is sincere in looking out for the welfare of the country as a whole and I just wonder if your department could take into consideration a little—and weigh more heavily—some of the factors we are faced with in this country.

First of all, I don't think there is a State, a county, a city, a village, a town, a school district whose credit is any worse than that of the U.S. Government. I don't know of a subgovernment that has had such serious deficits in the last 10 years—probably 20 or 22 out of the last 30 years. A situation where this country is unable, at feasible rates, to borrow money over a period of more than 5 years; where we are practically converting our debts into almost cash demands by shorter and shorter maturities; where the Treasury has failed to stretch out the maturities of our tremendous debt. A complete failure. They are paying 5 percent today for 5-year notes.

In the international field we are suffering from an adverse balance of international payments of about $3½ billion a year for the last couple of years. There is no end in sight.

Our gold stocks of $19½ billion have commitments against them and calls against them amounting to anything from $16 to $20 billion. If foreign investors were to demand gold for what we owe them, Fort Knox and all our gold would be gone.

There is a serious softening of the value of our international dollar and a somewhat lack of confidence in the strength of our dollar—this country that is supposed to be the greatest country in the world, that is supposed to furnish the leadership in the fight against the Soviets.

Now, let me talk about this Yellowtail. That is the background that we are working with here. I know that, specifically, it is our problem. But it is also your problem eventually.

Now, in this particular Yellowtail project it would appear to me that this project is uneconomical, not only for the U.S. Government, but also for the citizens. First of all, it builds up an agricultural surplus that we have to in time repurchase and practically give away. It grants long-term credits at roughly 3 percent where we are required to pay something like 4 to 5 percent—a differential of 2 percent over 50 or 60 years. That is a tremendous amount of money, a tremendous subsidy.

I also think it is unfair to your local governments. It tends to concentrate power in the U.S. Government. These projects do not pay the same rate of local and State taxes. It places a greater burden upon the local taxpayers by reason of the fact that these projects do not pay the comparable taxes that the private industry would pay.

I think it is injurious and damaging to the farmers as a whole—now, we are trying to help farmers, but in this type of operation, this type of irrigation reclamation hurts the farmer. We are producing and subsidizing to produce more and more, away beyond the capacity of the market to absorb. So that instead of helping the farmers as a class, this is the type of project that is keeping him in the plight that he is in. You are depressing the market every time you put an additional acre into irrigation. You are hurting the farmers as a class instead of helping them. You may help for a time the individual farmer who is producing in a particular unit, by reason of subsidization, but as a class, as a whole, all the farmers taken together, you are doing the greatest injustice you can do by increasing these acreages. You are not helping the farmer, you are hurting him.

I think that it is unfair also to the population as a whole to set up a separate class of people. We are citizens in common. And to create

classes that have special privileges I think is not good and not beneficial ultimately to this country. The taxpayers at large are paying this subsidy so that a certain class of people can get advantages that other classes, other peoples, aren't entitled to.

I have just made that statement without requesting any comment on it, but I would like to have it in the record to show that there is another side to this whole thing besides the arguments that we see advanced here every day in favor of these projects.

COST ESTIMATES ON YELLOWTAIL

Mr. RABAUT. I want to ask the last question now on this project, on this Yellowtail project, and we will get away from it.

How firm are your figures and have they been reviewed and as of what time? Cost estimates?

Mr. DOMINY. These cost estimates on Yellowtail Dam, powerplant, and the switchyards which are involved here in the estimates before you have been updated to current days' circumstances, taking into account the kind of bids we are getting on this kind of work all over the West at the moment, and the estimate certainly represents the very best judgment of our technical organization.

Mr. RABAUT. I want to have that in the record.

DRAINAGE AND MINOR CONSTRUCTION, MISSOURI RIVER BASIN

Drainage and minor construction, $598,000. Insert pages 305 through 307.

(The pages above referred to are as follows:)

CONSTRUCTION AND REHABILITATION—DRAINAGE AND MINOR CONSTRUCTION

Summarized financial data

Allotment, fiscal year 1960	$567,450
Application of prior year funds	420,300
Initial underfinancing	61,425
Total obligations, fiscal year 1960	1,049,175
Allotment, fiscal year 1961	598,000
Total obligations, fiscal year 1961	598,000

Description.—The drainage and minor construction program consists of those units on which the major construction has been completed except for facilities which are temporarily deferred or for which relatively small amounts of funds are being requested in the budget year for drainage construction, minor repair or replacement work, miscellaneous finishing activities or preconstruction work on the temporarily deferred facilities.

Work proposed, fiscal year 1961

The fiscal year 1961 program involves work on six units, and preparation of technical records and as-built drawings. Six units having active programs during fiscal year 1960 will be inactive during fiscal year 1961.

Angostura unit, South Dakota, $128,000.—The program provides for continuation of surface and subsurface drainage work to protect the irrigated lands from seepage.

Crow Creek pump unit, Montana, $30,000.—Construction of drains will be continued during the year. Work will be continued on settlers assistance which includes work in connection with farm units and negotiations with the water users on repayment.

Hanover-Bluff unit, Wyoming, $197,000.—Drainage construction will continue in both the Highland, Hanover and Upper Bluff areas.

Kirwin unit, Kansas, , 30,000.—These funds will be used for the payment of moving expenses of Kirwin Reservoir right-of-way claimants as provided under Public Law 85–433.

Sargent unit, Nebraska, $100,000.—These funds will be used for work related to possible settlement of waterpower interference rights with Loup River Public Power & Irrigation District and continuation of minor cleanup work. Canal lining will be installed as required.

Shadehill unit, South Dakota, $98,000.—Operations of Shadehill development farm will be continued. Investigations for definite plan report work will be continued with the objective of completing the report in fiscal year 1962.

Technical records and as-built drawings, $15,000.—Technical records of design and construction and as-built drawings will be prepared on completed separable features which have passed from the construction status to operation and maintenance status.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Units with fiscal year 1961 program:					
Angostura unit, South Dakota	$14,518,892	$14,229,741	$150,151	$128,000	$11,000
Crow Creek pump unit, Montana	1,758,665	1,602,685	30,980	30,000	95,000
Hanover-Bluff unit, Wyoming	3,408,034	2,650,113	261,921	197,000	299,000
Kirwin unit, Kansas	19,309,143	18,510,574	178,969	30,000	589,600
Sargent unit, Nebraska	8,334,235	5,997,877	17,250	100,000	2,239,108
Shadehill unit, South Dakota	11,334,502	7,797,328	56,174	98,000	3,383,000
Technical records and as-built drawings	69,430	39,805	14,625	15,000	.....
Units inactive in fiscal year 1961:					
Boysen unit, Wyoming	33,827,679	33,812,079	15,600	.....	.....
Canyon Ferry unit, Montana	29,309,342	29,106,096	203,246	.....	.....
Dickinson unit, North Dakota	1,766,816	1,764,689	2,127	.....	.....
Jamestown unit, North Dakota	3,919,969	3,827,699	10,270	.....	82,000
Lower Marias unit, Montana	65,025,918	21,197,959	97,959	.....	43,730,000
Rapid Valley unit, South Dakota	9,086,624	7,981,721	9,903	.....	1,095,000
Total obligations	201,689,249	148,518,366	1,049,175	598,000	51,523,708
Method of financing:					
Appropriation, fiscal year 1960	.....	.....	567,450	.....	.....
Application of prior year funds	.....	.....	420,300	.....	.....
Initial underfinancing	.....	.....	61,425	.....	.....
Appropriation required	.....	.....	.....	598,000	51,523,708

Mr. RABAUT. Will the work under this heading be fully reimbursed?

Mr. DOMINY. Not quite, sir; all except that which is allocated to nonreimbursable functions.

Mr. JENSEN. What are the results on the research on the quality of water in the Shadehill Reservoir? Have you concluded that the water is now suitable for irrigation use?

Mr. DOMINY. Yes, sir. A meeting was held last December with representatives of the South Dakota State College and the Agricultural Research Service to review the findings to date. It was concluded that the water of Shadehill Reservoir could be used for irrigation with certain limitations. Those limitations are (1) the land would have to be restricted to that having swelling characteristics comparable to or better than that on the development farm the Bureau is operating, (2) leaching water and gypsum would have to be applied periodically, and (3) adequate drainage facilities would have to be provided. We are now studying the effect of those limitations on the plan of irrigation development for the Shadehill unit.

MISSOURI RIVER BASIN INVESTIGATIONS

Missouri River Basin investigation, $656,000: Insert pages 308 through 313a.

(The pages above referred to are as follows:)

CONSTRUCTION AND REHABILITATION—INVESTIGATIONS

Summarized financial data

Total obligations, fiscal year 1960		[1] $901,371
Allotment, fiscal year 1961	$656,000	
Total obligations, fiscal year 1961		656,000

[1] Excludes funds for advance planning which is now shown as a separate activity.

Description.—The Missouri River Basin investigation program consists of—

1. Unit investigations to determine the feasibility of and develop plans for individual units of the project which need authorization or reauthorization.
2. Basin surveys to evolve plans for subbasin development and to determine units worthy of more detailed investigations.

The activities of the Interior Missouri Basin Field Committee also are financed with Missouri River Basin investigations funds.

Status

Unit investigations.—In fiscal year 1960 unit investigations studies are in progress on seven units and divisions and continuation of negotiations and discussions on one other unit. Of these, a feasibility report will be completed on the North Loup division. A small amount of funds will also be used for cooperation with local interests on the Nelson Buck unit on which a reconnaissance report was completed last year.

Basin surveys.—The fiscal year 1960 program consists primarily of the continuation of the investigations of the Yellowstone division. In addition, basin reports on the South Platte River Basin and Bighorn Basin will be completed and miscellaneous studies in connection with completed basin investigations will be continued.

Work proposed, fiscal year 1961

Unit investigations.—The fiscal year 1961 program provides for active unit investigations on five units and divisions and continuation of negotiations and discussions with local interests on two other units and divisions. A description of these active units and the fiscal year 1961 program is as follows:

Region 6

Wagner unit, South Dakota pumping division, South Dakota, $200,000.—This unit is located in southeastern South Dakota along the Missouri River in Charles Mix County. The plan under study contemplates irrigation of about 24,800 acres of semiarid new lands with water from the Corps of Engineers' Fort Randall Reservoir, by pumping from the reservoir to a main canal and laterals. The funds for fiscal year 1961 will be used to complete engineering surveys and location work, drainage studies, preparation of detailed designs and cost estimates, and economic studies leading toward completion of a feasibility report early in fiscal year 1962.

Region 7

Little Blue unit, Blue division, Nebraska, $95,200.—The Little Blue unit is located on the Little Blue River in Nuckolls, Jefferson, and Thayer Counties in south-central Nebraska. The Angus Dam and Reservoir will provide irrigation water to approximately 24,000 acres of lands susceptible to irrigation by means of a canal extending from the reservoir to the project lands or by pumping from the river.

The requested funds will be used to complete topographic mapping and detailed land classification studies on selected areas. Hydrologic, economic, and drainage studies and cost estimates necessary for a feasibility determination for this unit will be initiated or continued. A report is scheduled to be completed in fiscal year 1962.

Mirage Flats extension unit, upper Niobrara division, Nebraska, $20,000.—This unit, located in northwestern Nebraska about 12 miles south of Hay Springs, will consist of Colwell Dam and Reservoir, Colwell canal and laterals and drains to serve some 5,900 acres of new lands contiguous to the existing Mirage Flats project.

A reconnaissance appraisal of this unit was initiated in fiscal year 1960 and the funds for fiscal year 1961 will be used to complete these studies. Initiation of detailed preconstruction studies will be dependent upon the results of the reconnaissance appraisal.

Nelson Buck unit, Kanaska division, Kansas, $1,000.—The Nelson Buck unit is located in north-central Kansas on Beaver Creek in Decatur County, Kans. The Herndon damsite, located approximately 1 mile west of Herndon, Kans., would provide service for some 3,000 acres of new land located downstream. The reservoir will also provide significant flood control, recreation, and fish and wildlife conservation benefits.

A reconnaissance report was completed in fiscal year 1959 and released to the local interests for review and an expression of their interest in the proposed plan. The above funds will be used to continue discussions with the State and local interests to assist them in formulating their opinions and desires.

North Loup division, Nebraska, $4,373.—The North Loup division comprises irrigable lands in the valley areas and on certain uplands of the North Loup River and upper reach of the main Loup River in central Nebraska. Potential features of the division include two dams and reservoirs, several pumping plants, and a comprehensive system of canals and laterals required to furnish irrigation water to about 53,000 acres of high quality land. Other potential benefits include recreation, fish and wildlife propagation, and possibly a small amount of flood control.

A feasibility report on this unit is to be completed in fiscal year 1960. The funds shown above will be used for continuation of negotiations with the local interests.

O'Neill unit, lower Niobrara division, Nebraska, $20,661.—The O'Neill unit is located in north-central Nebraska in the eastern third of the Niobrara River Basin. Principal storage facilities would be located near Norden, Nebr. The carriage system would begin at this point and carry water downstream to irrigate lands comprising about 66,000 acres lying on tablelands south of the Niobrara River in the vicinity of Atkinson and extending easterly beyond O'Neill. The unit would also provide storage capacity for the potential Springview unit.

The detailed engineering, economic, and agricultural studies leading to preparation of a feasibility-type report will be substantially completed by the end of fiscal year 1960 and the above funds will be used for the preparation and review of the feasibility report.

Wheatland unit, Laramie division, Wyoming, $130,000.—The unit comprises 52,500 acres of irrigable land in and adjoining the Wheatland Irrigation District in Platte County of southeastern Wyoming. The facilities of the district have been in operation for many years and the waterusers have suffered severely from frequent and recurring water shortages requiring detrimental changes in cropping patterns and curtailed cropping operations. The purpose of this investigation is to develop a plan to conserve and supplement the existing water supply for this project and to determine a program for the rehabilitation of the project facilities.

The fiscal year 1961 program will provide for the completion of detailed feasibility studies and preparation of a report late in the year.

Basin surveys, $134,458.—During fiscal year 1961, the basin surveys program will consist primarily of completion of a survey in the Yellowstone division in Montana and North Dakota. Work will also be accomplished on miscellaneous investigations in connection with basin surveys which have been completed in prior years.

Missouri River Basin Field Committee, $61,000.—These funds are required to finance the Missouri River Basin Field Committee which has the responsibility of coordinating the development activities of all the Department of the Interior agencies involved in the conservation and utilization of the resources of the basin.

Adjustments, —$7,711.—Represents minor adjustments on nonappropriation transfers and other miscellaneous costs.

Other expenditures and credits, —$2,981.—Represents cost of service facilities and stores procured in prior years which will be distributed to active investigations or salvaged during the budget year.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Unit investigations:					
Region 6: Wagner unit (South Dakota pumping division), South Dakota	$400,000	$53,413	$139,426	$200,000	$7,161
Region 7:					
Little Blue unit (Blue division), Nebraska	290,300	105,627	70,673	95,200	18,800
Mirage Flats extension unit (upper Niobrara division), Nebraska	200,000	.....	20,484	20,000	159,516
Nebraska Midstate project, Nebraska	50,000	.....	50,000	.....	.....
Nelson Buck unit (Kanaska division), Kansas	115,000	40,456	1,849	1,000	71,695
North Loup division, Nebraska	1,514,000	1,486,056	23,571	4,373	.....
O'Neill unit (lower Niobrara division), Nebraska	850,000	701,769	127,570	20,661	.....
Wheatland unit (Laramie division), Wyoming	590,000	202,125	224,286	130,000	33,589
Other units, region 7	5,841,800	380,930	.....	.....	5,460,870
Total, unit investigations	9,851,100	2,970,376	657,859	471,234	5,751,631
Basin surveys:					
Region 6:					
Bighorn Basin division, Wyoming	690,889	684,782	6,107	.....	.....
Garrison division, North Dakota-South Dakota	3,930,000	2,205,391	6,239	.....	1,718,370
Powder division, Wyoming-Montana	1,492,409	1,487,534	4,875	.....	.....
White division, South Dakota-Nebraska	385,323	385,119	204	.....	.....
Yellowstone division, Montana-North Dakota	1,810,000	1,638,476	103,066	68,458	.....
Other divisions, region 6	4,948,000	2,813,087	.....	.....	2,134,913
Region 7: South Platte River Basin, Colo., Wyo., and Nebr	1,003,664	1,000,054	3,610	.....	.....
Regions 6 and 7: Miscellaneous investigations in connection with basin surveys	663,000	.....	93,474	66,000	503,526
Total, basin surveys	14,923,285	10,214,443	217,575	134,458	4,356,809
Interior Missouri River Basin Field Committee	1,759,909	969,257	59,529	61,000	670,123
Unscheduled work	9,536,915	9,536,915	.....	.....	.....
Abandoned work	11,828,646	11,828,646	.....	.....	.....
Adjustments	3,773,626	5,258,963	−6,292	−7,711	−1,471,334
Other expenditures and credits	.....	42,463	−3,300	−2,981	−36,182
Total expenditures	51,673,481	40,821,063	925,371	656,000	9,271,047
Undelivered orders	.....	24,000	−24,000	.....	.....
Total obligations	51,673,481	40,845,063	901,371	656,000	9,271,047
Method of financing:					
Appropriation fiscal year 1960	.....	.....	775,000	.....	.....
Application prior year funds	.....	.....	76,371	.....	.....
Contributions	.....	.....	50,000	.....	.....
Appropriation required	.....	.....	.....	656,000	9,271,047

Mr. RABAUT. No questions.

MISSOURI RIVER BASIN—ADVANCE PLANNING

The next item is "Advance planning." Total, $1,344,000. Insert pages 314 through 323.

(The pages above referred to are as follows:)

CONSTRUCTION AND REHABILITATION—ADVANCE PLANNING

Summarized financial data

Total obligations, fiscal year 1960		[1] $1,152,448
Allotment, fiscal year 1961	$1,344,000	
Total obligations		1,344,000

[1] Previously included in Missouri River Basin investigation program.

Purpose of program.—Subsequent to authorization of a Bureau of Reclamation project, additional detailed studies are generally required to refine the findings of the feasibility report and evolve a definite plan of development prior to start of construction. The major portion of the work consists of the collection of final design data, the preparation of final designs and specifications and completion of the definite plan report. It also includes negotiations with local interests leading to execution of repayment contracts. This advance planning program will provide funds for detailed preconstruction studies on authorized divisions and units of the Missouri River Basin project to prepare those proposed developments for start of construction. During fiscal year 1961 advance planning will be under way on the following divisions and units:

CRAZY HORSE, TOWER, GREENWOOD, AND YANKTON UNITS, SOUTH DAKOTA

Location and description.—The Crazy Horse, Tower, and Greenwood units are located along the Missouri River downstream from the Fort Randall Dam in southeastern South Dakota. The Yankton unit is located immediately below the Gavins Point Dam. Each of these units will involve construction of a pumping plant and a system of canals, laterals, and drains. The four units would provide a full water supply for 8,544 acres of new land.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$184,000
Estimated cost to June 30, 1960		34,125
Fiscal year 1961 program		110,000
Planning allocation	$109,400	
Stores on hand, etc	600	
Balance to complete		39,875
Total estimated unit cost (4 units)		2,648,000

Fiscal year 1961 program.—The fiscal year 1961 program will provide for completion of the detailed land classification work, geologic and materials investigations, and water supply and hydrologic studies. Economic analyses and preparation of designs and estimates will be underway with the objective of completing the definite plan report in fiscal year 1962.

Justification.—These units are located in a predominately agricultural area. The average rainfall during the growing season varies from 11 to 15 inches per year and as a result crops are limited largely to wheat and small grains. Crop yields are generally low and crop failures due to drought are not uncommon. Irrigation would permit growing corn and forage crops to support an expanded livestock industry. This would stabilize the economy of the entire area.

GARRISON DIVERSION UNIT, NORTH DAKOTA–SOUTH DAKOTA

Location and description.—This unit is located principally in the central and eastern portions of North Dakota, with a small segment extending into northeastern South Dakota near the James River. The current plan of development for this unit involves the construction of a pumping plant on the Garrison Reservoir and a canal to convey water to a regulating reservoir located on the drainage divide between the Souris, James, and Sheyenne Rivers. Water should be released from this reservoir into a system of canals, pumping plants, and laterals to serve 250,000 acres of presently dry-farmed land. Future expansion of the unit to include additional land at a later date may prove desirable.

Authorization.—Flood Central Acts of 1955 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$6,416,000
Estimated cost to June 30, 1960		4,955,518
Fiscal year 1961 program		450,000
Planning allocation	$445,000	
Stores on hand, etc	5,000	
Balance to complete		1,010,482
Total estimated project cost		[1] 160,000,000

[1] Does not include Jamestown Dam and Reservoir already constructed.

Fiscal year 1961 program.—A report demonstrating the feasibility of the unit has been completed and detailed preconstruction studies leading to definite plan reports on the various service areas are underway. During fiscal year 1961 these studies will be continued with the objective of completing definite plan reports for the Oakes area and the LaMoure section by the end of fiscal year 1961 and for the Warwick-McVille and Karlsruhe areas by the end of fiscal year 1962.

Justifications.—This unit is located in the northeastern Great Plains area where the climate is semiarid and the existing agricultural economy is based on dry-farming and livestock raising. During almost every year crop production is limited by lack of rainfall during July and August and during drought years, crop failures and losses to the livestock industry are disastrous to the economy of a large area. Diversified agricultural operations that would be possible under irrigation would contribute materially to stabilizing farm income and the local economy. The rapidly developing recognition of the value of irrigation has been demonstrated in this portion of North Dakota by the prompt organization of five irrigation districts, by urgent requests from both the conservancy districts and the irrigation districts for negotiation of repayment contracts, and by substantial growth of irrigation where the limited water supply will permit. Furthermore, the construction of this unit also is needed to compensate the State of North Dakota for the loss of production on some 566,000 acres within the State that have been or will be inundated by main stem reservoirs.

JEFFERSON UNIT, MONTANA

Location and description.—This unit is located along the Jefferson River in Beaverhead, Madison, Jefferson, and Broadwater Counties in southwestern Montana. Storage for the unit would be provided by Reichle Dam, an earth-fill and rock-fill structure on the Beaverhead River, a tributary of the Jefferson River. An extensive canal system with related laterals and drains would be required to deliver a full water supply for 47,500 acres of new land and a supplemental supply for 15,100 acres of presently irrigated land.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$922,000
Estimated cost to June 30, 1960		326,102
Fiscal year 1961 program		337,000
Planning allocation	$336,000	
Stores on hand, etc	1,000	
Balance to complete		258,898
Total estimated project cost		59,272,000

Fiscal year 1961 program.—This program will provide for continuation of economic, engineering, and hydrology studies already underway and for the initiation of foundation drilling operations at the major structure sites, and assembly of design data for the dam and major canals. The definite plan report is scheduled for completion in fiscal year 1963.

Justification.—The Jefferson unit is located in an area of deficient precipitation subject to climatic extremes where irrigation is essential to agricultural production over a long period. Existing irrigation, for the most part, has evolved through private enterprise and the simple and less costly storage possibilities have been developed. At the same time streamflows have been overappropriated and most of the land under irrigation is in need of supplemental water to assure optimum production. The need for irrigation developments in this area is evidenced by a static population, crop yields fluctuating with climatic variations, and an unstable farm income. The Jefferson unit would permit diversification of farm crops, more intensive use of the land and stabilization of the area's agricultural production. In addition, periodic floods of the Jefferson River and its tributaries have caused extensive damage to farmland and communication, transportation facilities and other improvements in the area. Reichle Reservoir would aid materially in controlling the floodflows of the Jefferson River.

OAHE UNIT, SOUTH DAKOTA

Location and description.—Oahe unit is located in eastern South Dakota with the greater portion of the land lying within the James River valley in Spink,

Brown, Day, and Marshall Counties. The remainder of the unit lies along the Missouri River in Sully County. The current plan is to irrigate approximately 554,000 acres of new land with water diverted from Oahe Reservoir now being constructed by the Corps of Engineers on the Missouri River. The diversion works and water supply system will consist of a pumping plant of about 3,700 cubic feet per second capacity lifting the water about 130 feet at Oahe Reservoir, the Pierre Canal about 39 miles long leading to Blunt Reservoir, and several main canals totaling 292 miles leading from Blunt Reservoir to the various main areas of the unit. Several other reservoirs are included in the system for additional regulation of flows to meet peak irrigation demands.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$6,592,000
Estimated cost to June 30, 1960		4,390,190
Fiscal year 1961 program		20,000
Planning allocation	$18,000	
Stores on hand, etc	2,000	
Balance to complete		2,181,810
Total estimated project cost		583,141,000

Fiscal year 1961 program.—By the end of the current fiscal year the unit report demonstrating the feasibility of the unit is to be completed. That report is to be released to the local interests to permit them to formulate their opinions and desires before undertaking more detailed invesrigations. The funds for fiscal year 1961 will be used for any necessary liaison and discussions with the local interests and the State agencies.

Justification.—The Oahe unit is located in an area of low and variable rainfall with resulting unstable yields. At various times, severe drougnts have occurred which seriously injured the economy of the area. Irrigation of the land of this unit will change the agricultural pattern from a predominantly small grain and livestock farming operation to a more diversified farming of feeder and fattening livestock, dairying, and a wider variety of cash crops which in itself will contribute toward economic stability. The increased production of livestock feeds will permit livestock herds to be maintained through drought periods. The benefits resulting from the increased irrigation production will in turn result in increased retail, wholesale, and industrial activities of the towns and cities extending well beyond the boundaries of the Oahe unit as well as on the farms within the unit.

CEDAR RAPIDS DIVISION, NEBRASKA

Location and description.—The Cedar Rapids division comprises irrigable lands in the valley areas of the Cedar River and along the north side of the main Loup River extending about 10 miles downstream from the mouth of the Cedar River, in central Nebraska. Potential features of the division include a dam and reservoir, a diversion dam and associated works, several pumping plants, and a comprehensive system of canals and laterals required to furnish irrigation water to about 35,000 acres of high-quality land. Other potential benefits include recreation, fish and wildlife protection and propagation, and possibly a small amount of flood control.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$748,000
Estimated cost to June 30, 1960		315,302
Fiscal year 1961 program		262,000
Planning allocation	$252,800	
Stores on hand, etc	9,200	
Balance to complete		170,698
Total estimated project cost		23,658,000

Fiscal year 1961 program.—The funds for fiscal year 1961 will be used for topographic and detailed land classification surveys; preparation of designs and

estimates; agricultural, economic, and hydrologic studies; and subsurface exploration work. The definite plan report is to be completed in fiscal year 1963.

Justification.—The Cedar Rapids division is located in an area where the average precipitation is about 24 inches per year. This rainfall varies widely and the precipitation during the growing season is often insufficient to mature the crops. During extended drought periods such as occurred during recent years, complete crop failures are common. As a result there is a growing realization among the local interests of the necessity for a permanent irrigation agriculture which will stabilize farm income and avoid the wide fluctuations in the local economy that have occurred in the past.

GLEN ELDER UNIT, KANSAS

Location and description.—The Glen Elder unit is located on the Solomon River in Mitchell, Cloud, and Ottawa Counties, Kans. The plan of development proposes Glen Elder Dam at a site on the river immediately upstream and adjacent to the western boundary of the town of Glen Elder. A system of canals and laterals would deliver the water to some 22,000 acres of project lands along both sides of the river extending downstream from Glen Elder to near Delphos, Kans.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$650,000
Estimated cost to June 30, 1960		371,538
Fiscal year 1961 program		134,000
Planning allocation	$133,000	
Stores on hand, etc	1,000	
Balance to complete		144,462
Total estimated project cost		57,222,000

Fiscal year 1961 program.—This program will provide for completion of the topographic mapping of the unit lands, continuation of land classification surveys and hydrologic studies, and initiation of agricultural economic studies. The definite plan report is scheduled to be completed in fiscal year 1963.

Justification.—On numerous occasions in the past, floods of the Solomon River have caused extensive damage to towns, utilities, crops, and lands along the river. Damages in the valley resulting from the July 1951 flood alone were estimated at over $16 million. Glen Elder Reservoir is the key facility of the flood control system on the Solomon River and, when operated in conjunction with the existing Kirwin and Webster Reservoirs, will eliminate the greater portion of the flood threat to the Solomon River Valley.

Glen Elder Reservoir also would provide storage of water for irrigation. As in other Great Plains areas, the climate which produces flooding conversely deprives the area of moisture in critical crop-growing periods. Although dryland farming in the unit area produces abundantly with adequate moisture, intermittent droughts and poor distribution of rainfall have impaired the predominantly agricultural economy and resulted in instability and insecurity. More dependable crop yields sustained at higher levels through the introduction of irrigation will lend stability to the area. It will permit diversification in farm operations, a balanced livestock program and encourage the adoption of soil conservation practices.

KANOPOLIS UNIT, KANSAS

Location and description.—The Kanopolis unit is located in north-central Kansas on the Smoky Hill River in Ellsworth, McPherson, and Saline Counties. The water supply for the unit will be obtained from the existing Kanopolis Reservoir constructed by the Corps of Engineers. The unit will involve construction of the canals, laterals, and drains required to provide a full water supply for some 16,500 acres of land.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost of preconstruction planning		$433,525
Estimated cost to June 30, 1960		432,199
Fiscal year 1961 program		1,326
Planning allocation	$1,000	
Stores on hand, etc	326	
Balance to complete		
Total estimated project cost		11,032,000

Fiscal year 1961 program.—The definite plan report for this unit is to be completed during fiscal year 1960. The fiscal year 1961 program will provide for miscellaneous studies and continued liaison with the local interests.

Justification.—As in many areas of the Great Plains, the lands of the Kanopolis unit produce abundantly under dryland farming in those years when there is sufficient rainfall during the critical growing period. However, the precipitation during the summer months is often insufficient to fully mature the crops. During extended drought periods, such as occurred recently throughout the Great Plains area, complete crop failures are common. As a result, farm income and the local economy is subject to wide fluctuations. Introduction of irrigation would provide stability by permitting sustained crop production, diversification of farm operations, and a balanced livestock program.

NARROWS UNIT, COLORADO

Location and description.—The Narrows unit is located on the South Platte River in Weld, Morgan, Washington, Logan, and Sedgwick Counties. The key feature of the unit will be the Narrows Dam and Reservoir on the South Platte 8 miles west of Fort Morgan, Colo. This reservoir will conserve floodflows and return flows from upstream developments to provide supplemental water for some 225,000 acres of currently irrigated land suffering from chronic shortages and, ultimately, a full supply for some 30,000 acres of new land.

Authorization.—Flood Control Acts of 1944 and 1946.

Cost of investigations

Total estimated cost preconstruction planning		$1,178,000
Estimated cost to June 30, 1960		1,081,954
Fiscal year 1961 program		50,000
Planning allocation	$48,800	
Stores on hand, etc	1,200	
Balance to complete		46,046
Total estimated project cost		36,956,000

Fiscal year 1961 program.—A draft of a report on this unit was prepared in June 1951 which was based on reregulating the return flows from the potential Blue-South project. The city of Denver was subsequently granted a right to divert water from the Blue River which precludes development of the Blue-South Platte project and invalidates many of the studies of the Narrows unit. A special report was prepared in 1958 to temporarily terminate the work but, in view of the renewed interest on the part of the Colorado Water Conservation Board and local interests, detailed investigations were resumed in fiscal year 1960 to reappraise the unit in light of existing conditions. The program for fiscal year 1961 will provide for continuation of this work with the objective of completing the definite plan report in fiscal year 1962.

Justification.—One of the most important functions of the Narrows Dam and Reservoir is to capture and regulate the spring floodflows and the return flows from large areas in the upper portion of the South Platte River Valley which are served largely by importation of water from the Colorado River Basin. The

Colorado-Big Thompson project now imports an average of 257,700 acre-feet of water annually and importations by the city of Denver are increasing. At the present time the floodwaters and a substantial part of the return flows from these upstream developments cannot be used within the South Platte River Basin for lack of storage. It is estimated some 810,000 acre-feet of water left the State of Colorado in 1942. Narrows Dam and Reservoir would make it possible to effectively utilize this water within the State. It also would provide needed flood protection for communities and farmland downstream from the reservoir.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
( )	(2)	(3)	(4)	(5)	(6)
Advance planning:					
Region 6:					
Chestnut Valley unit (Helena-Great Falls division), Montana	$236,640	$228,696	$7,944		
Crazy Horse, Tower, Yankton, Greenwood units, (South Dakota pumping division), South Dakota	184,000		34,125	$110,000	$39,875
Garrison diversion unit (Garrison division), North Dakota- South Dakota	6,416,000	4,532,567	422,951	450,000	1,010,482
Hardin unit (Lower Bighorn division), Montana	772,984	731,649	41,335		
Jefferson unit (Three Forks division), Montana	922,000	136,956	189,146	337,000	258,898
Oahe unit (James division), South Dakota	6,592,000	4,239,904	150,286	20,000	2,181,810
Other units, region 6	2,416,000	416,627			1,999,373
Region 7:					
Almena unit (Kanaska division), Kansas	272,716	269,604	3,112		
Cedar Rapids division, Nebraska	748,000	98,441	216,861	262,000	170,698
Glen Elder unit (Solomon division), Kansas	650,000	298,093	73,445	134,000	144,462
Kanopolis unit (Smoky Hill division), Kansas	433,525	409,569	22,630	1,326	
Narrows units (South Platte division), Colorado	1,178,000	1,067,322	14,632	50,000	46,046
North Republican unit (Upper Republican division), Colorado-Nebraska	170,000	88,695			81,305
Other units, region 7	745,000				745,000
Adjustments	3,828,074	3,570,631	9,661	−10,126	257,908
Service facilities		260,657	−10,576	−9,200	−240,881
Stores		19,059	−20,059	−1,000	2,000
Total expenditures	25,564,939	16,368,470	1,155,493	1,344,000	6,696,976
Undelivered orders		3,045	−3,045		
Total obligations	25,564,939	16,371,515	1,152,448	1,344,000	6,696,976
Method of financing:					
Appropriation fiscal year 1960			1,053,125		
Application prior year funds			99,323		
Appropriation required				1,344,000	6,696,976

GARRISON UNIT, NORTH AND SOUTH DAKOTA

Mr. JENSEN. It is noted that the latest proposal for the Garrison project is for an initial project of some 250,000 acres. Secretary Seaton's report of October 1, 1959, to the President through the Bureau of the Budget is not in sufficient detail to show the actual areas contemplated nor the facilities included in the estimated cost of $169 million.

The Bureau of the Budget, under date of January 9, 1960, advised the Secretary of the Interior in effect that the Garrison project was a worthless project and the Bureau could not recommend favorable action on the project.

I ask that a copy of that letter be placed in the record.

Mr. RABAUT. Without objection, that will be placed in the record.

(The document above referred to follows:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., January 9, 1960.

The Honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge receipt of your report on the Garrison diversion unit, North and South Dakota, Missouri River Basin project, transmitted by letter dated October 1, 1959. You request advice as to the relationship of the report to the program of the President.

The development recommended in your report would be the largest single unit of the Missouri River Basin project. It would provide a water supply for irrigation of 250,000 acres of land, more dependable water supplies to numerous municipalities, industries, and wildlife areas, and incidental benefits from flood control, drainage of nonirrigable lands, and recreation.

On the basis of January 1959 price levels, the construction cost is estimated at $169 million, including over $9 million already expended on investigations of the Garrison diversion unit and on construction of Jamestown Dam, and the investment and assigned costs are estimated to total about $200 million. Using a 100-year period of analysis and total anticipated average annual benefits (direct and secondary), the benefit-cost ratio is stated to be 1.99. It is understood that the cost estimate for the 250,000-acre project recommended in your report does not include amounts to provide added capacity at some future date to serve the larger area recommended by the Commissioner of Reclamation. It is also understood that the several references in your report to possible future expansion are not to be construed as an endorsement by you at this time of an authorization for irrigation of over 250,000 acres.

The reimbursable costs allocated to irrigation are estimated at $153,740,000 (about $615 per irrigable acre), of which only $36,250,000 or about 24 percent is expected to be repaid by the irrigators and the conservancy district. Your report proposes that net revenues from the Missouri River Basin power system be used to repay, without interest, the remaining 76 percent of the irrigation allocation, presently estimated at $117,490,000. It is understood that the costs allocated to irrigation would be repaid without interest within 50 years, excluding a development period, either by the water users and the conservancy district or from surplus Missouri River Basin power revenues.

It is noted that the stated benefit-cost ratio of 1.99 is derived through the use of a 100-year period of analysis. The Bureau of the Budget considers that proposed water resources developments should be evaluated within their expected economic life, but not beyond a period of 50 years from the time project benefits will become available. While it is recognized that the physical and operational life of many projects undoubtedly will exceed 50 years, an assumption of economic life beyond this period of time is highly speculative, particularly if the rate of recent technological advance is projected into the future. Your report indicates that evaluation of the proposed development within a period of 50 years would reduce the benefit-cost ratio to 1.66.

It is also noted that secondary economic benefits have been used in calculating the benefit-cost ratio of the proposed Garrison diversion unit. On the basis of information received from the Department, it would appear that secondary benefits are estimated to be over 60 percent of total irrigation benefits and that using only primary benefits the benefit-cost ratio of the project would be only 0.76. Only if secondary benefits were credited in an amount equal to approximately 45 percent of primary irrigation benefits would the benefit-cost ratio be increased to unity. The Bureau of the Budget recognizes, of course, that net secondary benefits probably do result from Federal reclamation investments and that a judgment about such benefits may be appropriate in project evaluation. However, in view of the conjectural nature of secondary benefits, we seriously question whether secondary benefits should ever be estimated at such a large proportion of total benefits. No other Federal water resource development program employs secondary benefits to this extent in project evaluation.

It is understood that the benefits expected from enhancement of fish and wildlife are equated with the cost of a hypothetical least expensive single-purpose alternative method of producing equivalent benefits. On this basis, costs allocated to fish and wildlife enhancement are estimated at about $23 million although the incremental costs involved are estimated at only about $4 million.

In the absence of a generally accepted method for calculating fish and wildlife values with reasonable accuracy, the Bureau of the Budget believes that the decision to add features or capacity to any water resource development solely for fish and wildlife enhancement purposes should be based primarily on a well-informed and carefully considered judgment as to whether such additional investment is justified. Thus, the maximum monetary benefits from a multiple-purpose development which could properly be assigned to enhancement of fish and wildlife values would be equal to the cost of providing those benefits. Adjustment of fish and wildlife enhancement benefits using this procedure would further reduce the benefit-cost ratio and, at the same time, result in commensurate increases in the reimbursable costs allocated to the other purposes of the development, including irrigation.

Furthermore, it is not clear from your report why at least a part of the costs allocated to enhancement of fish and wildlife should not be reimbursable as contemplated by the Fish and Wildlife Coordination Act.

From the foregoing discussion, it appears reasonable to conclude that the economic justification for undertaking the Garrison diversion unit at this time is at best marginal even if a sizable monetary value is arbitrarily assigned to possible secondary benefits which might result if the development is successful in improving and stabilizing the agricultural economy of North Dakota.

In view of the fact that the original authorization of the Garrison Reservoir contemplated utilization of a portion of the storage for irrigation purposes, the Bureau of the Budget has over the past year worked closely with the Department of the Interior in its efforts to develop a plan for a sound irrigation project. Your letter of October 1 indicated that a unit for 250,000 acres is the most economic plan which can be developed consistent with this objective. However, the fact that such a unit reflects a revision in earlier plans which contemplated a larger acreage has meant that both the cost estimates and the specific areas to be irrigated admittedly require much further study.

For the reasons set forth in this letter the Bureau of the Budget cannot recommend favorable action on this project. However, there would be no objection to the submission of your report of October 1 to the Congress. Should the Congress nevertheless decide to consider authorization of the project, it is believed such authorization should be contingent upon the submission of a further and more detailed report to the President and the Congress. It is expected, among other things, that such a report would include a finding as to what part of the cost allocated to fish and wildlife enhancement should be reimbursable under the terms of the Fish and Wildlife Coordination Act.

It would be appreciated if a copy of this letter accompanied your report to the Congress.

Sincerely yours,

ELMER B. STAATS,
Acting Director.

BENEFIT-COST RATIO OF GARRISON UNIT

Mr. JENSEN. This indicates that over 60 percent of the benefits claimed are of hypothetical and questionable indirect benefits. Will you give us a detailed list of the various benefits claimed, both direct and indirect, and the amount credited to each and the method used to derive them?

It is noted that without the nebulous indirect benefits, the benefit-cost ratio would be less than unity.

Do you really believe that we should continue to waste the taxpayers' money on a project of such dubious value, under our present fiscal conditions and the present surplus crop conditions?

Based on direct benefits only, 50-year payout, and 3 percent interest, what would be the benefit-cost ratio for the proposed 250,000-acre initial development?

Mr. RABAUT. You will supply that for the record?

Mr. DOMINY. We will be happy to, sir.

(The information requested is as follows:)

Direct and Indirect Benefits on Garrison Diversion Unit

For the 250,000-acre unit annual equivalent benefits have been based on the 100-year period of analysis and the schedule of land development used in the 1957 report. A detailed list of these annual equivalent benefits are as follows:

Benefits, annual equivalent values for 100 years

	Direct	Indirect	Public	Total
Irrigation	$3,582,000	$3,626,000	$2,099,000	$9,307,000
Loss of agricultural benefits	0	−236,000	−174,000	−410,000
Municipal water	457,000			457,000
Industrial water	212,000			212,000
Recreation	69,000			69,000
Flood control	112,000			112,000
Fish and wildlife enhancement	1,110,000			1,110,000
Drainage	63,000	185,000	120,000	368,000
Total	5,605,000	3,575,000	2,045,000	11,225,000

The following tabulation provides the annual equivalent benefits for the Garrison diversion unit based on a 50-year period of analysis and the schedule of land development used in the 1957 report.

	Direct	Indirect	Total
Irrigation	$3,208,000	$5,127,000	$8,335,000
Loss of agricultural benefits	0	−358,000	−358,000
Municipal water	396,000		396,000
Industrial water	184,000		184,000
Recreation	67,000		67,000
Flood control	93,000		93,000
F. & W.L. enhancement	1,434,000		1,434,000
Drainage	57,000	273,000	330,000
Total	5,439,000	5,042,000	10,481,000

In regard to the methods used to derive project benefits, our procedures are designed to evaluate the direct and indirect gains in goods and services resulting from the project. In general, the benefits claimed are the difference between the effects with the project and without the project.

Direct irrigation benefits are the increases in net farm income resulting from the application of water. The increase is derived from differences in project area totals for representative farm budgets with or without the project. Where new farm units are proposed, an allowance for the value of alternative earnings of new farmers in the absence of the project is deducted from the increase net farm income.

Indirect irrigation benefits are increases in the net income of the persons other than the water users as a result of the increased flow of agricultural products from the project. The increased income is estimated by the use of factors representing the ratio of a share of profits in later processing to the increased value of farm sales.

Public irrigation benefits are estimates of the value of achieving national objectives other than those included in direct and indirect irrigation benefits. They included such items as settlement opportunity, employment opportunity, and economic growth.

Municipal and industrial water service benefits are measured by the lesser of the figures: the estimated cost of the most economical alternative source of equivalent water likely to be developed for use in the same area in the absence of the project or the estimated value of water to the users in cases where there is no alternative source or where alternative costs would exceed the maximum rates at which water could be marketed.

Recreation benefits are measured by applying unit values to the difference in average annual attendance to such areas with and without the project.

Flood control benefits are reductions in losses to land and other private property and increases in net income for more intensive or changed use of property due to reductions in damage from water and settlement. Damages to property are measured by the cost of restoration, and agricultural damages are measured by the market value of farm products lost. Increases in net income from higher use of property are derived by applying an estimated rate of return to the increase in property value due to the project.

Fish and wildlife benefits are measured by applying unit values to the difference in available annual sustained yields of the various species involved with and without the project. In those cases where such unit values are not readily available the cost of the most economical alternative project to achieve the same benefit is used as a measure of the benefit.

Drainage benefits are derived by applying the same methods utilized in evaluating irrigation benefits.

Based on direct benefits only over a 50-year payout period at 3 percent the benefit-cost ratio for the proposed 250,000-acre Garrison diversion unit would be 0.63 to 1

DETAILED DESCRIPTION OF GARRISON UNIT

Mr. JENSEN. With the Garrison project map that accompanied the January 1957 report as a reference, will you give us a detailed description of the various canals, dams, pumping plants, and other major facilities that are included in the initial proposal and cost estimate? Also, give the capacities of the major canals, pumping plants, and reservoirs in the initial phase.

Mr. DOMINY. Our report on the Garrison diversion unit pointed out the necessity for retaining flexibility in the selection of the actual tracts of land to be irrigated within the areas delineated on the project map, for the 250,000-acre unit. There are several aspects of this project which make such flexibility of choice necessary. It will be necessary that the 250,000 acres be selected from the 1 million acres or more which have been identified as irrigable, on the basis of such physical factors as contiguity of the lands, harmony with other project purposes, hydrologic considerations, and low first cost and operating costs. Local and State desires, status of district organizations, and willingness to contract for repayment will also affect this selection.

So that we might present figures on feasibility and economic justification for such a 250,000-acre project, one plan which appears to meet most of the above criteria was used for analysis but with no intention of thereby "freezing" the project plan.

With this necessary preliminary explanation, we will proceed to answer the specific questions with regard to the plan which our report describes.

Water will be diverted from Garrison Reservoir on the Missouri River for irrigation of 250,000 acres, municipal and industrial water use in 15 towns and cities, fish and wildlife uses, and recreation purposes in Devils and Stump Lakes and other impoundments. Drainage of land, pollution abatement, and some flood control are other purposes to be served. The principal supply works are (1) the 1,850 cubic feet per second Snake Creek pumping plant, which pumps water from Garrison Reservoir into existing Snake Creek Reservoir; (2) the 1,750 cubic feet per second McClusky Canal some 73 miles long, which carries this water in a general easterly direction across the drainage divide; and (3) the Lonetree Reservoir on the headwaters of the Sheyenne River, which stores the diverted water whence it may be diverted to six areas of development.

The six areas of development include five organized irrigation districts with approximate acreages as follows: Dickey-Sargent (Oakes area, North Dakota), 46,000 acres; James River (LaMoure section), 12,200 acres; Warwick-McVille, 41,500 acres; Karlsruhe, 20,000 acres; and Middle Souris, 96,000 acres; and the New Rockford area (unorganized), 34,300 acres. The Oakes area, LaMoure section, New Rockford area, and Warwick-McVille area will receive water diverted into

a modified James River (New Rockford Canal) from Lonetree Reservoir. Both the Karlsruhe and Middle Souris areas adjacent to the Souris River will receive water from Velva Canal, which diverts from Lonetree Reservoir.

The system includes 1,900 miles of canals and laterals, 4 regulating reservoirs (Snake Creek and Jamestown which have been constructed, and Lonetree and Taayer proposed for construction), 170 pumping plants, and about 2,200 miles of drains to control ground and surface water. Capacities of some of the most important features are:

Reservoirs	Acre-feet		
	Inactive	Active	Total
Snake Creek	365,000	[1] 62,000	427,000
Lonetree	130,000	280,000	410,000
Jamestown	10,000	[2] 220,000	230,000
Taayer	3,000	18,000	21,000

[1] Approximate capacity between elevations 1,847 and 1,850 feet.
[2] Of this capacity 20,000 acre-feet is for conservation and the remainder for flood control of James River.

Canals and initial capacity

[In cubic feet per second]

McClusky	1,750
Velva	2,000
New Rockford	1,750
Warwick-McVille	780
James River feeder	450
Oakes	600

Power for pumping will be supplied from the Missouri River Basin project directly or by wheeling over privately owned lines.

The facilities to serve the 250,000 acres would be constructed to full size initially during a period of about 10 years, with construction underway about 3 years before the first lands are irrigated. Construction of deferred drains would extend over another 20 years, making a total construction period of 30 years. The plan includes Jamestown Reservoir, already constructed on the James River.

Mr. JENSEN. Will you show the location of irrigable acreages that are to be served under this initial proposal by giving a list of the various "areas" and "sections" of the project involved, the acreage in each and the public land, townships involved in each such area or section?

Mr. DOMINY. At this stage in the investigations we do not have information as detailed as would be necessary to answer this question. Such data can be provided only after exact locations of canals, laterals, and turnouts have been determined, and farm unit layouts are firmly established. When definite plan studies have been completed for all of the 250,000 acres ultimately selected for service, we will have the necessary information to answer such questions. The funds requested for fiscal year 1961 would permit us to continue studies to get such data.

DETAILED GARRISON LAND CLASSIFICATION

Mr. JENSEN. The report of the Bureau of Reclamation as transmitted to the Bureau of the Budget stated that detailed land classification had been completed on only 391,000 acres, or 13 percent, of the gross area involved. How much of the proposed 250,000 acres in the initial development have had detailed land classification?

Mr. DOMINY. Detailed land classification has since been completed on the Oakes area of about 46,000 acres and is currently in progress on the Karlsruhe and Middle Souris areas.

GARRISON REAUTHORIZATION

Mr. RABAUT. You request $450,000 for the Garrison diversion unit, but the Bureau of the Budget has refused to endorse your proposal for reauthorization of this project. Why should we spend any more money on it until it is reauthorized?

Mr. DOMINY. I recognize initially the committee does not like to pursue advance planning in advance of authorization.

In the case of the Garrison diversion unit, we have a peculiar situation in that technically the unit is still authorized as part of the Missouri Basin project and was set forth in the documents accompanying the Flood Control Act of 1944.

RIGHT-OF-WAY ACT OF 1890

We admit that we do need additional legislation by reason of the fact that the 1890 Right-of-Way Act just doesn't fit the circumstances that prevail here. We are confident that Congress did not intend to preserve the right to move in and take a 200- or 300-foot strip out of the middle of a man's farm without reimbursement, which would be the case if we exercise our technical and legal rights under the 1890 Right-of-Way Act in building this project. And that is the primary reason we are back to Congress for additional action.

Therefore, we submit that this is in a little different category than the ordinary prohibition against advance planning in advance of authorization. Technically it is still authorized as part of the Missouri Basin project.

Mr. RABAUT. Now we will have spent about $5 million studying this project by the end of this fiscal year.

Mr. DOMINY. That is right, sir. This is ultimately a million acre project, which we have been studying. To be sure, the matter before Congress now is a first stage, limited to something like 250,000 acres.

PERSONNEL ASSIGNED TO GARRISON UNIT

Mr. RABAUT. In view of this sum of money, how many employees are you proposing to perpetuate for another year on this study? Now that might be difficult to answer and you can supply it.

(The information referred to follows:)

PERSONNEL ENGAGED IN THE INVESTIGATION OF THE GARRISON DIVERSION UNIT

If the investigation of the Garrison diversion unit were to be terminated at the end of the current fiscal year, it would be necessary to reduce the present staff of the Missouri-Souris project office at Bismarck, N. Dak., by some 56 employees including a number that are working on other phases of the planning program that could no longer be performed efficiently at the field level because of the reduced workload and which probably would be transferred to the regional office. The net reduction in the regional planning staff would be approximately 48 employees—most of whom are skilled technicians with many years of valuable experience in the planning of water resource developments.

Mr. RABAUT. What will those people do if there is no reauthorization?

Mr. DOMINY. They would be going on with the detailed planning work that will ultimately be necessary, the detailed engineering and layout of specific features, canals, laterals, and so on, that would ultimately be required.

Mr. RABAUT. There is $450,000 in here this year for this. It is true it is a study but it will all be lost if we do not reauthorize it.

Mr. DOMINY. If it were never built, this money would be lost; yes, sir. The value of the work done would be lost. And, of course, that is true with the——

Mr. RABAUT. Have you any sanguine prospects of it being authorized by the Bureau of the Budget?

BUDGET BUREAU REPORT

Mr. DOMINY. Of course, the Bureau of the Budget has authorized our submitting the report. Their report, I think, should not be characterized quite as Mr. Jensen characterized it. It certainly is not a complete endorsement of our proposal, but neither do I think it is as complete a refutation of our proposal as Mr. Jensen implied.

Mr. JENSEN. What percent would you say of 100 percent? Would you say I was in error in my statement—1 percent, 2 percent, 2½ percent? Surely not more than that, Mr. Dominy?

Mr. DOMINY. Well, I think each of us has made our point, Mr. Jensen.

Mr. JENSEN. Very well.

Mr. RABAUT. Do you have different interpretations as to the Budget's remarks on this subject?

Mr. DOMINY. As I say, it wasn't a complete endorsement. They did end up by making it plain, however, that while the Bureau of the Budget couldn't recommend favorable action, they had no objection to the report going to Congress, and I quote from the Budget Bureau letter:

> However, there would be no objection to the submission of the report of October 1 (Secretary of the Interior's report) to the Congress, and should the Congress, nevertheless, consider authorization of the project, it is believed such authorization should be contingent upon the submission of a further and more detailed report to the President and to the Congress.
>
> It is expected, among other things, such a report would include a finding as to what part of the costs allocated to fish and wildlife enhancement should be reimbursable under the terms of the Fish and Wildlife Coordination Act.

Now obviously, Mr. Chairman, your familiarity with the diligence of congressional committees will assure you, I know, that these matters will be carefully discussed in the Senate and House committees and their Committees on Interior and Insular Affairs and in the event the project does not measure up to the standards required by Congress for projects of this nature, it will not be reauthorized.

Mr. RABAUT. A few minutes ago you said that the whole of the Missouri Basin project or several projects tied together was sound. Is that right?

Mr. DOMINY. Yes. For example——

Mr. RABAUT. We know this project here would bring in a rate that was established some long time ago, based on costs of that time and will not add to the soundness of that project, at all. In fact, it will detract from it.

Mr. DOMINY. On the contrary, Mr. Rabaut, this Garrison unit will be carrying out the exact function of the Missouri River Basin Project Act, and that was to place an economic foundation of irrigation under this hazardous, semiarid agricultural area.

Mr. RABAUT. Adding these two things together, it is hard for me to consider it without making a deduction.

STATE INTEREST

Mr. DOMINY. I would also like to point out in connection with the multiple-purpose features of the Missouri River Basin, the State of North Dakota has provided from its economy a sizable area of good bottom lands that is flooded for the benefit of the downstream flood-control beneficiaries.

Mr. JENSEN. They got paid for it.

Mr. DOMINY. They were paid for it in terms of payment on the value of the land at time of acquisition, but as far as the State economy was concerned, they haven't been paid for it. They were participating in this Missouri River Basin project on the basis that they would get their project for irrigation to stabilize their economy and they very often find means of pointing that out, that we haven't yet finished the job that was undertaken as a part of the overall basinwide development.

Mr. RABAUT. Well, do you think we can leave this now, with the enlightenment that has been shed on the subject?

Mr. JENSEN. Mr. Chairman, I have never heard anybody in the State of North Dakota complain about the hundreds of millions of dollars that was spent in their State for the development of the Missouri River project and I don't think we ever will.

They are very pleased; it helped their economy enormously, and I don't think they would cry great elephant tears if we didn't go along completely with every request that the Bureau makes for their great and wonderful State.

Mr. DOMINY. As a matter of fact, Governor Davis and quite a contingency of North Dakota people within this past year went down to a meeting with the lower basin States and presented the argument which I just outlined, when there was some discussion among the lower basin States that they didn't want further depletions of the Missouri River in North and South Dakota for fear that it would interfere with navigation.

Mr. JENSEN. You didn't expect them to do otherwise, did you, Mr. Dominy?

Mr. DOMINY. No, I didn't, Mr. Jensen.

OAHE UNIT

Mr. RABAUT. On the Oahe unit, we have spent $4,398,000 to get a full report on the feasibility of this project. You say it will be completed this year. The $20,000 you are requesting is for liaison and discussions with local agencies for something already done.

Couldn't this be handled in your spare time on the telephone.

Mr. DOMINY. I think it is far more basic than that. Here again we have spent a sizable sum of money in a major planning undertaking and we are wrapping up the report and it is going to be on the shelf unless the citizens of South Dakota embrace the idea with considerably more enthusiasm than they have displayed up to this point.

We do need a small sum of money to help utilize all the information that has been gathered and help make this available generally to the people concerned.

KANOPOLIS UNIT

Mr. RABAUT. Kanopolis unit, $1,326.

This is also a request for "Miscellaneous" something, and "Liaison", on the work completed. Why can't the phone calls on this project be routed through the nearest employee who has some additional reason for being on the payroll?

Mr. DOMINY. Well under the reimbursable concept of reclamation we have to sign these gentlemen out against specific projects. We know that he is going to be required to spend some time in connection with this unit, so we would like to have the funds earmarked.

Mr. RABAUT. This fellow will be on a part-time basis at $1,326.

Mr. DOMINY. That is correct, it will be a man spending a portion of his time on this.

MISSOURI RIVER BASIN OPERATION AND MAINTENANCE

Mr. RABAUT. Operation and maintenance, $5,737,500. Insert pages 324 through 330a.

(The pages above referred to are as follows:)

MISSOURI RIVER BASIN PROJECT—OPERATION AND MAINTENANCE

Description.—This project is located in Montana, North Dakota, South Dakota, Wyoming, Nebraska, Colorado, Kansas, Minnesota, and Iowa. As units, or part thereof, of the project are completed they are placed in operation as soon as possible so that the area will receive irrigation benefits. The units are then operated and maintained by the Bureau until they are transferred to irrigation districts. Completed transmission and power facilities of the project are operated and maintained by the Bureau with appropriated funds. Irrigation features of the project that have been transferred to and are now operated by the water users are the Bartley and Cambridge systems, Frenchman-Cambridge division; part of the Bostwick division, Owl Creek unit; Savage unit; Heart Butte unit distribution system; Hanover-Bluff unit and Sargent unit. The Bureau operates the distribution system of Crow Creek pump unit with funds advanced by water users except for the cost of electrical energy.

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960
Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued.			
Fort Peck area (Transmission division in Montana and North Dakota; project headquarters, Fort Peck, Mont.): The increase is due partly to the replacement program and partly to increase in facilities to be operated. The equipment acquisitions, additions, betterments, and replacements program of $44,000 is an increase of $19,000 over the prior-year program for these items. The program for these nonrecurring items provides $29,000 for automotive equipment replacements; $5,000 for miscellaneous office equipment, engineering test equipment, and maintenance tools; and $10,000 for metering additions and substation improvements. The remaining increase is principally due to $52,000 for additional costs of operating Fort Peck powerplant by Corps of Engineers, which includes operation of the 2d powerplant as well as existing facilities, and $45,865 for additional recurring maintenance on older facilities of the system	$900,000	$1,024,000	+$124,000
Kansas River area (St. Francis, Cedar Bluff, Kirwin, and Webster units and Frenchman-Cambridge and Bostwick divisions): The decrease is primarily due to the irrigation districts accepting the responsibility of operation and maintenance on the Meeker-Driftwood system, Kirwin system and part of the Kansas-Bostwick system. The nonrecurring program of $15,000 for canal lining on the Kirwin system is an increase of about $13,000 over the previous-year program for this type of work	282,659	271,500	−11,159
Missouri-Oahe area (Angostura, Keyhole, Rapid Valley, and Shadehill units and the Transmission division in Minnesota and South Dakota; project headquarters, Huron, S. Dak.): The increase is principally due to requirement of about $77,000 for expansion of transmission facilities and an increase in nonrecurring-type maintenance. The program of nonrecurring items amounting to $64,200 provided in the fiscal year 1961 program is about $44,000 above the program for similar work in fiscal year 1960. This program of nonrecurring items includes $7,000 for minimum basic health and safety facilities at Keyhole Reservoir; $2,000 for replacement of a shop and sump pump at Angostura Dam; $2,000 for bridge deck replacements on canal crossings; $5,400 for painting of metalwork and gates on Angostura Dam; $5,600 for major overhaul of Angostura powerplant; $15,600 for vehicle replacement; $7,000 for cooling of transformers; $2,000 for graveling access roads; $10,200 for protective equipment and modification of mobile transformers; and $7,400 for other miscellaneous equipment	560,000	681,000	+121,000

	Program, fiscal year 1960	Program, fiscal year 1961	Increase (+) or decrease (−) from 1960
Missouri-Souris area (Dickinson, Fort Clark, Heart Butte, Jamestown units and the transmission division in Minnesota, and North Dakota; project headquarters, Bismarck, N. Dak.): The increase is principally due to requirement of $59,400 for expansion of transmission facilities and additional maintenance for the older facilities in the system. Additions, betterments, and replacements program of $25,000 in fiscal year 1961 is an increase of $11,500 over the fiscal year 1960 program for these items. These items include $1,500 for settler's assistance on Heart Butte and Fort Clark units; $4,000 for boundary surveys at Dickinson and Heart Butte Reservoirs to mark the taking area required for effective administration; $4,000 for vehicle replacements; and $15,500 for miscellaneous equipment required for expanded system, minor construction work, and minor modifications and additions to lines and substations	$433,000	$504,000	+$71,000
North Platte area (Glendo and Kortes units, transmission system, Nebraska and Colorado, and headquarters at Casper, Wyo.): Of the total increase about $135,000 is due to the initiation of operation and maintenance on Kortes-Cheyenne line, Guernsey rural substation, Gray Reef Dam and Reservoir, the 1st full year of operation of the Fremont Canyon powerplant; normal wage increases; and the requirement to pay half the O. & M. cost of Pathfinder Reservoir upon completion of Fremont Canyon powerplant. The program of nonrecurring items is increased $111,300 over the fiscal year 1960 program. The fiscal year 1961 program includes $17,000 for vehicle replacements, $3,000 for replacement of garage roofs, $4,500 to rebuild the bus structure in Glendo switchyard, $3,000 for replacement of storage battery, $2,000 for new customer connections, $20,000 for oiling and improving roads, $5,000 for testing equipment, $40,000 for procurement of portable crane, $25,000 for treating pole rot, $25,000 to uprate 4 oil circuit breakers, $4,000 for spare 115-kilovolt potential transformer, and $2,500 for minor miscellaneous equipment and air conditioning Gering substation control house	896,250	1,143,000	+246,750
Region 6 area—Other (includes former program item, Lower Platte area. Revised area includes Canyon Ferry, Owl Creek and Sargent units; the Transmission division in Montana, Nebraska, and Iowa; centralized power-system operations for Eastern division; project headquarters, Billings, Mont.): The increase is principally due to additional wheeling requirements of $173,194 because of anticipated load growth, $12,151 for increased operation and maintenance of existing facilities, and $57,260 for expanded system operations. Anchor Dam and Reservoir, scheduled for completion in fiscal year 1961, will be placed in the operation-and-maintenance status during the year. The program of additions and replacements of $25,000 is a decrease of $12,400 from the previous-year program for these items. This fiscal year 1961 program of nonrecurring items will consist of $3,500 for vehicle replacements; $6,500 for modifications to the Sioux City substation control building; $2,000 for safety equipment; $3,000 for current transformers; $1,500 for customer meters; and $8,500 for testing and other minor equipment	1,348,095	1,579,000	+230,905
South Platte area (western Transmission system, South Platte): A decrease of $375,459 in the program is due to elimination of purchase power on the assumption of a normal water year in fiscal year 1961. This decrease is offset in part by the additions and replacements program which is about $122,000 over the prior program and by $125,000 for additional wheeling and increased operation and maintenance costs. The fiscal year 1961 program provides $177,000 for replacements which includes $19,000 for replacement of 8 motor vehicles; $68,000 for replacement of transformer; $66,500 for replacement of radio and carrier phone equipment; and $23,500 for minor system modifications, tools and work equipment and modifications of Fleming and Hygiene substations. Additions total $28,350 and include additions at Flatiron switchyard and Kersey and Beaver Creek substations, material for the installation of ground rods, and oscillograph and hoist and minor system additions as required	1,363,346	1,235,000	−128,346
Upper Missouri area (Crow Creek pump and Lower Marias units; project headquarters, Great Falls, Mont.): The increase is due to expansion of the area irrigated and an increase in additions, betterments, and replacements. The program of $3,800 for additions, betterments, and replacements is an increase of $3,000 over the prior-year program for these items. This program includes $3,000 for inspection, observation, and minor construction work on Tiber Dam and Reservoir; and $800 for miscellaneous items	29,000	33,000	+4,000

	Program fiscal year 1960	Program fiscal year 1961	Increase (+) or decrease (−) from 1960
Yellowstone-Bighorn area (Boysen unit, Transmission facilities and project headquarters, Casper, Wyo.): The decrease is primarily due to consolidation of Yellowstone-Bighorn area operations with the North Platte area operations. The program of additions and replacements includes $4,000 for replacement of motor vehicles; $3,000 for overhaul of power unit; $1,500 for camp betterments; $4,000 for improvement of patrol roads; and $5,000 for substation additions and betterments. The additions and replacement program for fiscal year 1961 is about $8,000 less than the prior-year program for these items	$316,267	$302,000	−$14,267
Total obligations	6,128,617	6,772,500	+643,883
Appropriation available and required	5,214,730	5,737,500	+522,770
Non-Federal advances	13,887	11,000	−2,887
Fort Peck continuing fund	900,000	1,024,000	+124,000

Project statistics—Missouri River Basin project (consolidated)

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land:				
Full	Acre	53,589	34,080	48,206
Supplemental	do	160	160	160
Total	do	53,749	34,240	48,366
Irrigated area	do [1]	26,210	21,640	28,945
Gross crop value	Dollar [1]	1,747,814	1,201,800	1,631,000
Average gross crop value per irrigated acre.	do [1]	137	125	131
Storage dams and reservoirs	Number	21	21	22
Diversion dams	do	2	2	1
Pumping plants	do	5	5	5
Canals	Mile	192.1	110.1	138.4
Laterals	do	150.8	115.4	179.8
Drains	do	30.0	51.4	60.0
Telephone lines	do	12	12	12
Operating roads	do	73.7	73.7	73.7
Power system:				
Annual sales	Kilowatt-hour [3]	4,752,403,474	[3] 5,316,605,000	[3] 5,844,671,000
Revenues from sale of electrical energy.	Dollar	[2] 20,631,815	[2] [3] 22,830,447	[2] [3] 24,916,919
Powerplants	Number	5	5	7
Plant capacity (nameplate capacity).	Kilowatt	126,200	126,200	198,200
Patrol roads	Mile	1,468	1,543	1,752
Transmission lines:				
Circuit	do	6,418.8	6,660.8	7,447.8
Structural	do	6,288.3	6,530.3	7,431.8
Substations	Number	167	176	178
Substation capacity	Kilovolt-ampere	2,663,000	2,833,669	2,996,960
Facilities operated by water users:				
Irrigation system:				
Irrigation service land:				
Full	Acre	73,211	123,284	125,480
Supplemental	do	42,594	47,178	60,301
Total	do	115,805	170,462	185,781
Irrigated area	do [1]	85,537	115,175	126,365
Gross crop value	Dollar [1]	6,070,694	8,311,400	9,101,000
Average gross crop value per irrigated acre.	do [1]	121	125	124
Storage dams and reservoirs	Number			1
Diversion dams	do	3	4	4
Pumping plants	do	27	27	27
Canals	Mile	298.2	408.3	421.0
Laterals	do	314.3	395.5	400.9
Drains	do	11.5	11.5	11.5

[1] Figures on calendar year basis.
[2] Includes sales and revenues on Riverton, Shoshone, Colorado-Big Thompson, and Kendrick projects plus Corps of Engineers main stem plants for which the Bureau is the marketing agent.
[3] In addition to footnote 1 also includes North Platte project.

Mr. RABAUT. No questions.

MISSOURI RIVER BASIN, TRANSFERS TO OTHER AGENCIES

WITNESSES

JAMES T. McBROOM, BRANCH OF RIVER AND BASIN STUDIES, BUREAU OF SPORT FISHERIES AND WILDLIFE
ARNOLD J. NICHOLSON, BRANCH OF RIVER AND BASIN STUDIES, BUREAU OF SPORT FISHERIES AND WILDLIFE
R. H. LYDDAN, ASSISTANT DIRECTOR, GEOLOGICAL SURVEY
F. G. USHER, CHIEF, BUDGET AND FINANCE BRANCH, GEOLOGICAL SURVEY
E. J. UTZ, ASSISTANT COMMISSIONER FOR RESOURCES, BUREAU OF INDIAN AFFAIRS
MARK WELT, BUDGET AND FINANCE OFFICER, BUREAU OF LAND MANAGEMENT
LEON DUFUY, SPECIAL ASSISTANT FOR MINERAL RESOURCES, BUREAU OF MINES
ROBERT W. LUDDEN, CHIEF, BRANCH OF RECREATIONAL SURVEYS
CARL A. BURROUGHS, STAFF ARCHEOLOGIST, NATIONAL PARK SERVICE

Mr. RABAUT. "Transfers to other agencies," $3 million, pages 331 through 331c.

(The pages above referred to precede each Bureau's presentation.)

Mr. RABAUT. The committee has always understood from your testimony that there was some sort of a balance necessary between your investigation work and that of other specialty departments like fish, parks, geological survey, et cetera, who contribute to your studies. The tail is more and more wagging the dog. Your own program is for $656,000, but you plan to give to your friends $3 million to help you. Why does this figure remain so high?

Mr. DOMINY. I would like for Mr. Bennett to comment on that in general, and we have our friends right here who can speak for themselves.

Mr. BENNETT. Well, Mr. Chairman, I have only one introductory statement on this, because I think this is a matter on which the other agencies are all represented here. It is true that some parts of this work are coordinated with the Bureau program. But, on the other hand, these other agencies of the Department also have work of their own on the Missouri Basin program which they do, all of which is financed by transfer out of this item.

So I don't think it is quite as much of a "tail wagging the dog" situation as it might appear on first blush.

BUREAU OF SPORT FISHERIES AND WILDLIFE

Mr. RABAUT. I understand there are representatives here of these other Bureaus to make these valuable contributions, so we would like to hear from the Bureau of Sport Fisheries and Wildlife. The justification will be included in the record.

(The matter referred to follows:)

Fish and Wildlife Service—Construction and Rehabilitation

Summarized financial data

Total obligations to June 30, 1959	$4, 182, 755
Allotment, fiscal year 1960	233, 025
Prior year balance available	212
Total obligations, fiscal year 1960	233, 237
Allotment, fiscal year 1961	280, 000
Total obligations, fiscal year 1961	280, 000

JUSTIFICATION

A total of $280,000 is requested for investigations by the Bureau of Sport Fisheries and Wildlife in the Missouri River Basin. Funds in this amount will enable the Bureau to bring its program more into balance with the programs of the water-resource development agencies in the basin. The Bureau will be able to carry out more effectively the added responsibilities placed on it by the Fish and Wildlife Coordination Act as amended in 1958 (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The investigative program of the Bureau of Sport Fisheries and Wildlife in the Missouri River Basin is not related solely to the general investigations program of the Bureau of Reclamation. In addition to the general investigations program of the Bureau of Reclamation, this program must also service the construction and operation program of that Bureau and the planning and construction programs of many agencies and organizations. These are: the Corps of Engineers, the Department of Agriculture, the licensees and permittees of the Federal Power Commission, applicants for loans under the Small Reclamation Projects Act, applicants for permits from the Forest Service for rights-of-way for water projects, and private organizations seeking to build their own water-use projects with Federal assistance. Under its investigative program, the Bureau of Sport Fisheries and Wildlife studies the water-use projects of these various agencies and organizations to determine their effects on fish and wildlife resources and to recommend measures for inclusion in project plans to protect, develop, and improve fish and wildlife resources. These biological studies constitute an integral part of Federal planning for overall development of the water and related land resources of the Missouri River Basin.

The Missouri River basin contains a greater variety and abundance of fish and wildlife than any comparable area in the United States. Approximately one-half of the elk, two-thirds of the antelope, one-half of the bighorn sheep, and most of the remaining grizzly bears in the Nation are found here. The basin contains high populations of deer, grouse, and pheasants and embraces the most important waterfowl-producing area in the United States. Some of our most important trout streams, including the world-renowned Madison River, are located in the upper reaches of the Missouri River system.

Public interest in hunting and fishing is high throughout the basin. These sports provide the major recreational pursuits of a large proportion of the population. Sales of hunting and fishing licenses have nearly doubled since 1940 and now stand at about 4 million. The hunting and fishing opportunities here attract sportsmen from across the Nation who provide substantial income to the basin.

The broad development of land and related land resources throughout the basin by the Bureau of Reclamation, Corps of Engineers, Department of Agriculture, and numerous non-Federal agencies is causing extensive changes in fish and wildlife habitat. Some changes are beneficial, such as the provision of desirable reservoir fishing or the creation of improved pheasant habitat through irrigation development. Other changes are harmful, such as the dewatering of high-quality trout streams or the inundation of essential elk range. The Bureau of Sport Fisheries and Wildlife is responsible for studying each project development and assisting the project construction agency in devising measures for incorporation in project plans to prevent damages and provide benefits to fish and wildlife resources.

The largest single endeavor in fiscal year 1960 will continue to be in connection with the proposed Garrison diversion unit of the Bureau of Reclamation. This

project involves the diversion of nearly 9,000 cubic feet per second of water from the Garrison Reservoir to irrigate almost a million acres of land in North and South Dakota. Ten national wildlife refuges and some of the most productive waterfowl-breeding habitats in the Nation are located in the project area. The Department report on this project includes as part of the overall plan the development of some 62 fish and wildlife areas ranging in size from 50 to over 15,000 acres which are designed primarily to provide compensatory waterfowl-breeding habitats in place of that being lost through construction of other project features. During fiscal year 1961, the Bureau of Sport Fisheries and Wildlife will continue detailed biological and engineering investigations to firm up the development plans for various of these fish and wildlife areas.

Other major studies of Bureau of Reclamation developments will be made in connection with the Oahe unit in South Dakota, various units of the Three Forks division in Montana, and the Yellowstone division in Montana. The Oahe unit will provide irrigation for about 750,000 acres of land, much of which is located in the Nation's most famous pheasant range where heavy populations of these birds presently occur. Plans for a number of fish and wildlife areas are being developed for inclusion in the overall development plans for this unit. The Three Forks area provides superb trout fishing in its Jefferson, Madison, and Gallatin Rivers which combine at Three Forks, Mont., to form the Missouri River. The Madison River is widely known as a top-quality trout stream, and the Gallatin, Big Hole, and Jefferson Rivers provide equally good fishing. This Bureau is reviewing various development proposals in the Three Forks area by the Bureau of Reclamation to determine which will be most desirable from a fish and wildlife standpoint. Basin investigations in the Yellowstone division include the Absaroka and Yankee Jim project proposals in which fish and wildlife groups in Montana are particularly concerned.

Major studies of Corps of Engineers will include those related to the Oahe Reservoir in North and South Dakota, the Big Bend Reservoir in South Dakota, the Stockton Reservoir in Missouri, and the Kasinger Bluff Reservoir in Missouri. Studies will be directed toward the development of measures for inclusion in project plans to protect and improve fish and wildlife resources.

A number of lesser investigations will be conducted in connection with other project developments of the Corps of Engineers and Bureau of Reclamation; small reclamation projects proposed under Public Law 984, 84th Congress; small watershed projects proposed under Public Law 566, 83d Congress, as amended; non-Federal hydroelectric power projects subject to Federal Power Commission license; and other miscellaneous projects.

These biological investigations will be conducted in close cooperation with the State fish and game agencies as provided for in the Fish and Wildlife Coordination Act.

Funds in the amount of $280,000 will be needed to accomplish this program during fiscal year 1961.

Who is going to make the statement?

My name is James T. McBroom, Mr. Chairman.

I have with me Mr. Arnold J. Nicholson of our staff, who has recently been stationed at Billings, Mont.

Mr. Chairman, in response to your question of Mr. Dominy and Mr. Bennett, I would like to point out that the Fish and Wildlife Service, under the authority of the Fish and Wildlife Coordination Act, deals with the water programs of all Federal agencies and those requiring Federal license in the entire Missouri basin.

For fiscal year 1961, the Corps of Engineers, for example, we are told, has a budget in the Missouri basin of $122 million. We are required to study their projects and work with them on that program.

The Bureau of Reclamation, as you have heard, has a program of around $56 million in the basin. Besides that, we deal with the program of the Soil Conservation Service under the small watershed program.

We also deal with licensees under the Federal Power Commission and projects under Federal permit from the Forest Service and the Bureau of Land Management.

We have submitted to the committee a list of work units for major areas for fiscal year 1961 which shows that we plan to spend on the Bureau of Reclamation program, $171,000, on 32 units.

On the program of the Corps of Engineers, $81,000, on 20 units, and $28,000 on the programs of the Soil Conservation Service, the Forest Service, the Federal Power Commission and miscellaneous items in 1961, for a total of $280,000.

So, Mr. Chairman, our program is only in part associated with the Bureau of Reclamation.

TOTAL COST IN MRB FOR F. & W.S.

Mr. RABAUT. What is your total cost going to be in this area?

Mr. MCBROOM. Our total cost from the beginning until we propose to complete?

Mr. RABAUT. Yes, what is it going to be?

Mr. MCBROOM. We have no estimate on that, Mr. Chairman. Our job is not to develop a program of our own. I would like to make that clear. Our job is to work with the programs——

Mr. RABAUT. Your job is to find out what the others do as they go along?

Mr. MCBROOM. That is exactly right.

Mr. RABAUT. And you ought to have some sort of an estimate, if they are going to do the whole area, how much would it cost?

Mr. MCBROOM. Well, sir, that is again problematical——

Mr. RABAUT. You must have some liaison with the plan that they have going on all the time. That is the type study you should be making, isn't that right?

Mr. MCBROOM. That is right.

Mr. RABAUT. Haven't you any idea what that cost is going to be?

Mr. MCBROOM. Our total estimated cost, I do not have.

Mr. RABAUT. Do you think you could estimate it or could you supply it for the record?

Mr. MCBROOM. We will be glad to try to do that, sir.

Mr. RABAUT. Supply it for the record.

(The information referred to follows:)

The estimate of total cost for investigation in the Missouri River Basin water programs by the Bureau of Sport Fisheries and Wildlife depends wholly on the cost estimates for programs of the Corps of Engineers, Department of Agriculture, Bureau of Reclamation, and others who are the primary water-development agencies in the basin. The Bureau of Sport Fisheries and Wildlife does not have any independent program of its own in this water-project investigation category. Funds for other activities like predator and rodent control and wildlife refuge acquisition and management are made available from the Interior Department appropriation, from the proceeds from the sale of Federal duck stamps, from contributions, and from other sources.

The Bureau of Sport Fisheries and Wildlife is required by the Fish and Wildlife Coordination Act to work cooperatively with the water project construction agencies in all phases of their programs, including investigations, construction, and operations.

In these circumstances, the only estimate which can be made of the total estimated cost of the investigation program in the Missouri Basin carried on under this heading is to derive a percentage relationship of the total expenditure by the water project construction agencies to date to the total appropriated to the Bureau of Sport Fisheries and Wildlife under this heading, and then to apply this percentage to the total estimated future cost of the water project construction programs in the basin.

This has been computed on the above basis as follows:

TABLE I.—*Missouri Basin project, total expenditure to June 30, 1959*

Agency	Planning	Construction	Total
Bureau of Reclamation	$57,216,578	$520,993,753	$578,210,331
Corps of Engineers	1,890,000	1,439,181,711	1,441,071,711
Department of Agriculture	435,000	1,264,221	1,699,221
Total [1]	59,541,578	1,961,439,685	2,020,981,263

[1] Other expenditures such as by permittees of Federal Power Commission, Forest Service, Bureau of Land Management, local organizations cooperating with small watershed program, and others not included due to difficulty of obtaining data, since these potential projects are privately initiated and accurate advance information is almost impossible to obtain. Total expenditure of Bureau of Sport Fisheries and Wildlife to June 30, 1959, is $4,182,755. Percent that this figure bears to the total expenditure is 0.2 percent.

TABLE II.—*Missouri Basin project, balance to complete*

Agency	Planning	Construction	Total
Bureau of Reclamation	$15,978,023	$2,646,301,247	$2,662,279,270
Corps of Engineers	1,400,000	1,281,508,992	1,282,908,992
Department of Agriculture	[1] 4,000,000	[1] 12,000,000	16,000,000
Total [2]	21,378,023	3,939,810,239	3,961,188,262

[1] Estimated from average cost per project to June 30, 1959, times number of projects to be completed as determined from the Department of Agriculture.

[2] Other expenditures such as by permittees of Federal Power Commission, Forest Service, Bureau of Land Management, local organizations cooperating with small watershed program, and others not included due to difficulty of obtaining data.

Applying the percentage figure shown above to the total estimated cost of the second table, the total additional cost of the work by the Bureau of Sport Fisheries and Wildlife can be estimated to be $7,922,000.

Mr. RABAUT. Are you going to put your statement into the record?

Mr. MCBROOM. If that is the chairman's wish. I will be glad to read it or put it in the record.

Mr. RABAUT. You may proceed.

GENERAL STATEMENT OF BUREAU OF SPORT FISHERIES AND WILDLIFE

Mr. MCBROOM. Funds in the amount of $280,000 are required to permit needed studies of Federal and federally approved water-resource development projects in those parts of the 10 Western States which comprise the Missouri River Basin. This will enable the Bureau of Sport Fisheries and Wildlife to bring its study program more nearly into balance with other water-resource development agencies in the basin. Added responsibilities imposed by enactment of the Fish and Wildlife Coordination Act in August 1958 can be more effectively carried out.

Responsibilities of the Bureau of Sport Fisheries and Wildlife extend to those proposed water-development projects not yet authorized, authorized but not constructed, and under construction but not substantially completed. Agencies whose programs are involved include the Bureau of Reclamation, the Corps of Engineers, Department of Agriculture, licensees and permittees of the Federal Power Commission, applicants for Federal grants and loans under the Small Reclamation Projects Act, applicants for Forest Service permits for rights-of-way for water projects and private organizations seeking to build their own water projects with Federal assistance.

The Missouri River Basin contains a greater variety and abundance of fish and wildlife than any comparable area in the United States. It is believed that approximately one-half of the elk, two-thirds of the antelope, one-half of the bighorn sheep, and most of the remaining grizzly bears in the Nation are found here. The basin contains large populations of deer, grouse, and pheasants and embraces the most important waterfowl-producing area in the United States. Some of our most productive trout streams, including the world-renowned Madison River, are located in the upper reaches of the Missouri River system.

Public interest in hunting and fishing is high throughout the basin. These sports provide the major recreational pursuits of a large proportion of the population. Sales of hunting and fishing licenses have nearly doubled since 1940 and now stand at about 4 million. The hunting and fishing opportunities here attract sportsmen from across the Nation who provide substantial income to the basin.

The Garrison diversion unit, North Dakota and South Dakota, continues to be of major concern. Some of the Nation's finest waterfowl-producing areas are involved in the area to be irrigated. The Service is preparing detailed plans for waterfowl management areas designed to compensate for losses in breeding habitat which will be caused by project construction.

Other major studies of Bureau of Reclamation developments will be made in connection with the Oahe unit in South Dakota and various units of the Three Forks Division in Montana. The Oahe unit will provide irrigation for more than 750,000 acres of land, much of which is located in the Nation's most famous pheasant range where heavy populations of these birds presently occur. Plans for a number of fish and wildlife areas are being developed for inclusion in the overall development plans for this unit. The Three Forks area provides superb trout fishing in the Jefferson, Madison, and Gallatin Rivers which combine at Three Forks, Mont., to form the Missouri River. Through close cooperation with the Bureau of Reclamation, plans for the various units in this division include substantial provisions for the protection and improvement of these outstanding fishery resources.

The proposed increase in funds relative to fiscal year 1960 will permit a review of the Yellowtail unit with special reference to the layout and construction of a cold-water fish hatchery, a more inclusive study of the Cove, Huntley extensions, and other units of the Yellowstone division, study of the Shadehill unit in South Dakota, a study of bank stabilization along the Missouri River, and studies of the Grand River Basin in Iowa and Missouri. The latter offers particularly good opportunities for fish and wildlife development.

A reduction in the study program of the Fish and Wildlife Service was necessitated by the reduced appropriation in fiscal year 1959. This has resulted in delays in report preparation which, in turn, have caused delays on the part of project construction agencies. The increase requested herein should aid materially in expediting the preparation of reports of improved quality and returning the entire water-resources program in the basin into a more proper balance with the programs of the various construction agencies.

Mr. JENSEN. You are asking for this money in order to have proper coordination between these other agencies which you have referred to.

Mr. McBroom. That is correct.

Mr. Jensen. And so that you will be able to work with them on the programs that are important to the fish and wildlife and to their respective agencies. Isn't that about it in a nutshell?

Mr. McBroom. That is correct, sir, and we do that by direction of a special act of Congress, last amended on August 12, 1958.

Mr. Rabaut. We have no quarrel with your Department but we want you to give us an estimate of what you expect to be your share of the contribution to this area, as to what they have in their planning program and what you have done in the past. We just want to get this on the record someplace.

Mr. McBroom. May I say, Mr. Chairman, that the estimate will involve first getting estimates for the same thing from the Corps of Engineers, the Bureau of Reclamation and the other agencies.

Mr. Jensen. I think we should cover all of them.

GARRISON DIVERSION UNIT

Mr. Rabaut. You state that—

> The largest single endeavor in fiscal year 1960 will continue to be in connection with the proposed Garrison diversion unit.

Now, if this isn't reauthorized, there is one of the largest parts of your expenses deleted. How much would that amount to for 1961?

Mr. McBroom. We would plan to spend $55,000 on the Garrison diversion unit and may I say that this would permit our agency to bring the level of its planning effort to the level of the Bureau of Reclamation so that they would be equal.

Mr. Rabaut. How do you arrive at a percentage of relationship on these things?

Mr. McBroom. We have never endeavored to derive a percentage relationship. However, for the answer you have requested it will be necessary to do that by empirical methods.

We would have to determine what percentage of the water project agency's expenditures we have utilized in past years in order to project this for the future.

Mr. Rabaut. Do you mean another report besides this one [indicating]?

Mr. McBroom. This is a general report and it is necessary that we develop detailed reports on the various areas which the project breaks down into, such as the Warwick-McVille area and so on.

Mr. Rabaut. This is March 3, 1959, the fish and wildlife, Garrison diversion unit.

Mr. McBroom. Yes, sir. That is a general report and in order to develop necessary detailed plans for fish and wildlife areas, we need additional investigation.

Mr. Rabaut. How much is involved in issuing a report like this?

Mr. McBroom. I could give you the cost to June 30, 1959. We estimate it to be about $318,000.

Mr. Rabaut. This is a report of 177 pages.

Mr. McBroom. I am not equating the figure with that report.

Mr. Rabaut. How much did it cost?

Mr. McBroom. Our total estimated cost on the Garrison diversion unit to June 30, 1959, in round figures, is $318,000.

Mr. Rabaut. Set forth in this report.

Mr. McBroom. Generally speaking. I wouldn't equate, as I said, that report to that cost, precisely, but that was one product of the cost.

Mr. Rabaut. But this is the history of the report.

Mr. McBroom. Yes, sir. Of course, there is a lot more that has been involved——

Mr. Rabaut. Wouldn't you feel that this is a sufficient amount of study for this project in view of the fact that it is under a cloud?

Mr. McBroom. One of the reasons it is under a cloud is precisely because of its fish and wildlife aspects and certainly we will have to answer for the Congress a good many more questions than we are able to now, when it gets to the point where Congress is considering it. They will want to know in detail what we propose to do for the fish and wildlife aspects of this project. We need to carry on further investigation, for one thing, simply to get that information for the Congress.

The Garrison diversion unit, Mr. Chairman, is the most significant water project from a fish and wildlife standpoint that we have so far examined in the entire United States, from the very beginning of our operations. In accordance with the Fish and Wildlife Coordination Act, conservation of these resources would be a coequal purpose of the plan of development. A large number of facilities are included in reclamation's plan for the benefit of fish and wildlife conservation, including 62 separate development areas with an aggregate area of 72,000 acres of water and marsh, all of which will be supplied with water through the irrigation works. Of the overall project costs for the million-acre development of $529,379,000, it has been proposed that $49 million be allocated to fish and wildlife in accordance with procedures established by law. We submit that an expenditure of $318,000 is a modest one on which to base a $49 million allocation, and that it, when taken in the perspective, does not seem to be at all out of line. In fact, we believe it would compare favorably costwise with investigations made by other agencies in the water-resource field on which an allocation of this magnitude is based.

Mr. Rabaut. Thank you very much.

GEOLOGICAL SURVEY

Geological Survey. Who is here for the Geological Survey? The justification will be included in the record.

(The matter referred to follows:)

Geological Survey—Construction and Rehabilitation

Summarized financial data

Total obligations to June 30, 1959	$33 844, 268
Allotment, fiscal year 1960	1, 659, 450
Prior year balance available	10, 492
Total obligations, fiscal year 1960	1, 669, 942
Allotment, fiscal year 1961	1, 890, 000
Total obligations, fiscal year 1961	1, 890, 000

JUSTIFICATION

The objectives of the Geological Survey under the departmentwide Missouri River Basin project are the collection, analysis, and interpretation of data on the water and mineral resources, and the preparation of topographic and geologic maps and reports, that are essential for planning the orderly development and utilization of the resources of the basin. Such information is needed by the Bureau of Reclamation and other agencies of the Government, as well as by the States and private industry. This work, while comparable to that financed by directly appropriated Survey funds, is oriented toward the specific needs of these development agencies.

The estimate for fiscal year 1961 is $1,890,000, an increase of $220,058 over 1960.

	1959	1960	1961	Increase
1. Topographic surveys and mapping	$739,650	$970,604	$1,100,000	$129,396
2. Geologic and mineral resource surveys and mapping	54,591	57,944	59,000	1,056
3. Water resources investigations	461,267	641,394	731,000	89,606
Totals	1,255,508	1,669,942	1,890,000	220,058

1. *Topographic surveys and mapping.*—1959, $739,650; 1960, $970,604; 1961, $1,100,000.

The estimate for this activity for 1961 is $1,100,000, an increase of $129,396 over 1960.

The Geological Survey prepares special and standard quadrangle maps needed by the Bureau of Reclamation and other agencies engaged in the development of the Missouri River Basin. Such maps portray the character and relief of the terrain, the position and the size of the manmade features, and the location and extent of the surface water features.

Federal and State agencies in the basin have requested topographic quadrangle mapping for use in planning development programs and improvements, including: (*a*) Dams and reservoirs, (*b*) irrigation systems, (*c*) primary roads, (*d*) geologic and minerals investigations, (*e*) surface and groundwater studies, and (*f*) land management. These needs have been reviewed and approved by the Interior Department Missouri River Basin Field Committee.

The increase will provide an expansion in topographic mapping activities more nearly able to meet the pace of resource development in the Missouri River Basin. The great amount of terrain data provided by topographic maps makes them an essential first step for planning large resource development projects. The topographic mapping program is geared to the basin program as a whole. To keep the planning of these developments properly coordinated, the continuation of the mapping program at a level adequate to provide maps where required is critical.

During 1961 mapping operations under this program will be continued on approximately 26,000 square miles, and new mapping will be started on approximately 5,000 square miles. The selection of quadrangles to be mapped is based on the highest priority needs for mapping in areas proposed for development projects and is designed to reduce duplication by other agencies.

2. *Geologic and mineral resources surveys and mapping.*—1959, $54,591; 1960 $57,944; 1961, $59,000.

The estimate for this activity for 1961 is $59,000, an increase of $1,056 over 1960.

The program of geologic and mineral resources surveys and mapping under the Missouri River Basin project may be divided into two broad categories: (1) General service geologic mapping and investigations, and (2) investigations of the oil and gas resources of the basin.

General service geologic mapping and investigations are conducted mainly in areas where engineering projects are planned by the Bureau of Reclamation, or by State or private agencies. Information on the character of the terrain, the nature of the unconsolidated surficial deposits and the underlying rocks, and the location, extent, and physical and chemical properties of potential construction materials is essential to the planning of such projects.

The oil and gas investigations in the basin are concerned chiefly with the collection of data that will aid in the location and appraisal of these resources. Mineral fuel resources need to be developed along with the other resources of the basin if the full potential of the area is to be realized.

Plans for fiscal year 1961 are to continue geologic investigations of the Williston basin oil and gas fields; to continue geologic investigations in the Whalen-Wheatland area of Wyoming; and to prepare a final report on the geologic mapping and related investigations in the Great Falls area, Montana.

3. *Water resources investigations.*—1959, $461,267; 1960, $641,394; 1961, $731,000.

The estimate for this activity for 1961 is $731,000, an increase of $89,606 over 1960.

One of the primary problems relating to the comprehensive development of the Missouri River Basin is the availability of water. The amount of water

available to serve the multiple demands, including irrigation, municipal and industrial use, hydroelectric power, and irrigation, varies widely both as to time and place. Only through the collection of basic information on the flow of streams, both as to quantity and quality, can the available water resources be evaluated. Thus, long-term records, showing the changes resulting from the wide fluctuations in precipitation and from manmade alterations, are essential to the orderly planning of basin development.

Information on the occurrence, quality, and recoverability of groundwater is also essential as a part of basin planning. In some areas, groundwater offers a valuable source of primary supply or of supplemental supply to surface-water development. A knowledge of the interrelationship between surface and underground waters is essential to the evaluation of overall water availability—not only as to source of supplies, but also in connection with drainage of excess waters.

The quality of available water may be a controlling factor in its use for irrigation and for municipal and industrial supplies. The amount of dissolved minerals in surface waters varies widely, as does the quantity, and continuing records of chemical-quality characteristics are required for an evaluation of suitability for use for particular purposes. The amount of sediment carried by streams is an important consideration in the design of reservoir projects, as adequate storage space must be allocated for the accumulation of deposits. Records of sediment loads in streams are likewise required to evaluate the effects of improved land-use practices and the installation of sediment-control structures.

Basic water-resources data should be available in advance of planning for all water projects. Such information furnishes a sound basis for appraising the quantity and quality of the water supply, thereby reducing the likelihood of inadequate designs or excessive costs of construction and operation. The cost of obtaining adequate basic data is only a small fraction of overall basin development costs.

The funds requested for water resources investigations during fiscal year 1961 would provide for a moderate expansion of the program carried on in 1960 and restore it to approximately the same level as that for 1958. The 1960 program includes streamflow data at about 172 sites, sediment-load data at 23 sites, chemical-quality data at 64 sites, and ground-water investigations in 14 areas. The proposed 1961 program would include streamflow data at 190 sites, sediment-load data at 25 sites, chemical-quality data at 70 sites, and ground-water investigations in 15 areas. In addition, an investigation of the hydrology of a prairie pothole area would be started in order to determine the loss of water from marsh and pothole vegetation in North Dakota and South Dakota. Many potholes in this region (now one of the greatest waterfowl habitat on the continent) will be lost because of land leveling and construction of drainage systems associated with the Garrison diversion project. Because irrigation water will be used to flood certain lowlands to replace some of the potholes, it is necessary to know how much water will be required to meet seepage, evaporation, and transpiration losses.

Mr. LYDDAN. My name is R. H. Lyddan. I am the Assistant Director of the Geological Survey. I have our Budget and Finance Officer, Mr. Usher, with me.

I have a prepared statement, sir, which I believe has been submitted to you. I don't propose to read it unless you would like me to.

Mr. RABAUT. We will put it in the record at this point, and you can tell us briefly about it.

(The prepared statement of Mr. Lyddan is as follows:)

The Geological Survey's budget request under the Missouri Basin program for fiscal year 1961 totals $1,890,000, an increase of $220,058 over the amount available in fiscal year 1960.

The Geological Survey's work under this program conforms to the long range objectives of the Survey and meets the needs of the Bureau of Reclamation and other agencies for basic information in the specialized field of the Survey. This, of course, does not reduce the value of the information for its many other uses by those who ordinarily benefit from the Survey's products. The work is comparable to that which the Survey does under its regular programs.

The estimate includes $1,100,000 for topographic surveys and mapping, an increase of $129,396 over 1960. The funds will be used in the mapping of areas proposed for development projects. During 1961 topographic mapping operations will be continued on approximately 26,000 square miles, and new mapping

will be started on approximately 5,000 square miles. The increase will provide an expansion in mapping activities to more nearly meet the pace of resource development in the Missouri River Basin.

The estimate includes $59,000 for geologic and mineral resource surveys and mapping, an increase of $1,056 over 1960. The information obtained by these investigations aids in the appraisal and development of the mineral, fuel, and petroleum resources of the basin; it also gives a basis for appraising the effects of the development of mineral resources and water, power, and related resources upon one another. Plans for fiscal year 1961 are to prepare a final report on the geologic mapping and studies in the Great Falls area, Montana, and to continue the geologic investigations of the Williston Basin oil and gas fields and the fuel resources in the Whalen-Wheatland area of Wyoming.

The estimate includes $731,000 for water resources investigations, an increase of $89,606 over 1960. Basic facts on the quantity, quality, availability, and distribution of water supplies are essential for the sound development and utilization of the water resources of the Missouri River Basin. The determination of the feasibility of development projects depends in large part upon this type of information. A small expansion in the investigational program is planned to meet the needs of the development agencies. Also, an investigation of the hydrology of prairie potholes is proposed for 1961. Many potholes in the "prairie pothole region" of North and South Dakota, now one of the greatest waterfowl habitats on the continent, will be lost because of landleveling and construction of drainage systems associated with the Garrison diversion project. Because irrigation water will be used to flood certain lowlands to replace some of the potholes, this investigation is necessary to determine how much water will be required to meet seepage, evaporation and transpiration losses from the shallow sloughs and marshes of this region.

Mr. LYDDAN. Our work, as I believe you are aware, consists of general investigations of the geology, topography and water resources of the whole area, to provide information on which the development work is based. We are engaged in no development or construction activity.

The largest single——

Mr. RABAUT. Do you give advice as to the conditions of the earth in certain places where, for instance, they make these drillings for these dams that have proved successful?

Mr. LYDDAN. Yes, sir.

Mr. RABAUT. Who blames who when one of these things goes sour?

Mr. LYDDAN. Well, we sometimes are of the opinion that it was not the fault of any one individual but rather due to the absence of sufficient information.

GARRISON DIVERSION DAM

Mr. RABAUT. What was your figure on the Garrison diversion dam? What do you have set forth as a figure?

Mr. LYDDAN. We don't have our figures broken down and paralleled exactly with the Bureau of Reclamation projects.

Mr. RABAUT. What do you parallel them with, a local group of items?

Mr. LYDDAN. In some cases they are related to groups of items put together. Our geologic projects in the Great Falls area, for example, are intended to provide a variety of data including information on landslides and construction material. There are five or six Bureau of Reclamation projects within that 5,000 square mile area which we are mapping.

Mr. RABAUT. And you don't have a relationship between your money problems and theirs?

Mr. LYDDAN. A relationship, yes, sir; but we do not parallel our projects precisely with theirs because sometimes it is a combination of a number of their projects which give justification for our work.

Mr. RABAUT. Then you couldn't give me figures on Garrison?

Mr. LYDDAN. We could identify the mapping work which appears to most directly——

Mr. RABAUT. Can you give us a breakdown in your estimate?

Mr. LYDDAN. Yes, sir.

Mr. RABAUT. Supply that for the record.

Mr. LYDDAN. All right.

(The information requested is as follows:)

PROGRAM RELATED TO THE GARRISON DIVERSION PROJECT

The Geological Survey's Missouri River Basin program for 1961 includes a study of the hydrology of areas of prairie potholes in the eastern parts of North and South Dakota. Because the plans are to use irrigation water to flood certain lowlands to replace some of the potholes that will be filled, this study is to determine the quantity of water required to meet seepage, evaporation, and transpiration losses from the shallow sloughs and marshes. About $25,000 will be devoted to this work in fiscal year 1961 under present plans. This study is not related to the Garrison project alone, but will produce information that will have much wider usefulness throughout the basin.

Topographic mapping, as well as general investigations of the surface water resources, are conducted within the geographic boundaries of the Garrison project, much as they are in other parts of the Missouri River Basin. This work serves the needs of various agencies participating in the overall basin development and would be required whether or not the diversion project is continued. For example, maps and water data are needed by the Corps of Engineers for flood control studies, the Bureau of Public Roads for highway location and planning, the Soil Conservation Service for conservation and drainage studies, and the Fish and Wildlife Service for game preservation and management.

In 1949 the Geological Survey completed engineering geologic field studies, principally geologic mapping, in the Garrison damsite area, North Dakota, as part of its Missouri River Basin development program. The geologic maps resulting from this work were published in 1951 and 1952. The geologic program planned for 1961 includes a subsurface investigation of the Williston Basin (northwestern South Dakota, western North Dakota, eastern Montana and northeastern Wyoming). The Williston Basin underlies, in part, the Bureau of Reclamation's Garrison diversion project. The Williston Basin study, however, is designed to provide geologic data needed to appraise the oil and gas resources of the region.

Mr. RABAUT. Thank you very much.

Mr. JENSEN. Are you doing any surveys, making any surveys on the Garrison diversion unit at the present time, or in that area? Or do you propose to?

Mr. LYDDAN. I am unable to say precisely, sir.

The general plan which we follow consists of our meeting with the Bureau of Reclamation and the representatives of other agencies which are planning development work, and having them tell us as far in advance as they can, the areas which they plan to go into. They tell us the areas in which they would like us to do mapping or some geological work so they will have the benefit of that information when they start their more detailed investigations, engineering design, and construction work.

Mr. JENSEN. Thank you.

Mr. Chairman, as you know, the Geological Survey is under the Department of the Interior and as such, I have had pretty close relationship with the administration, the Geological Survey, for the

past 18 years. I must say that it is a very necessary agency of Government. I believe every member of the committee that has urged the Geological Survey justification, at least for the past 18 years, has the highest regard for the good work done by that agency and the manner in which they present their justification. We find ourselves in such complete harmony with the Geological Survey that they generally get about what they want, because of the great importance, not only to the civilian part of our Government but also the military to a very great extent.

And my friends in the Geological Survey, if you continue the fine work you have done while I have known you in the past 18 years, you will have no trouble with Jensen, of Iowa, I can assure you.

Mr. RABAUT. You are the staff coordinator, are you not?

Mr. LYDDAN. No, I believe you are speaking of the representative who normally appears here. He is out of Washington now.

Mr. RABAUT. Who is he?

Mr. LYDDAN. Mr. John Reed.

Mr. RABAUT. We have Mr. Reed's name down here and I didn't think you were Mr. Reed. We will put your remarks in the record and we thank you for being here.

Mr. LYDDAN. May I say, Mr. Chairman, such a fine compliment from Mr. Jensen calls for a comment from me. We have enjoyed his support and statements such as he has just made. He has made them on a number of occasions.

BUREAU OF INDIAN AFFAIRS

Mr. RABAUT. And now we will have the Bureau of Indian Affairs. Who is here for that?

The justification will be included in the record.

(The matter referred to follows:)

BUREAU OF INDIAN AFFAIRS—CONSTRUCTION AND REHABILITATION

Summarized financial data

Total obligations to June 30, 1959		$2,991,801
Appropriation, fiscal year 1960	$174,037	
Prior year balance available	2,917	
Total obligations, fiscal year 1960		176,954
Appropriation, fiscal year 1961	$196,400	
Total obligations, fiscal year 1961		196,400

JUSTIFICATION

Approximately one-third of the Missouri River Basin investigation program for fiscal year 1961 will be devoted to work in relation to the Corps of Engineers' projects. The largest single item under this category is for completion of the range and soil survey at Fort Berthold Reservation which was started during the close of fiscal year 1959. The survey will be completed in fiscal year 1961. Another major undertaking and the one carrying highest priority will be for continuation of the work at Standing Rock in connection with the moving and reestablishment of families due to the flooding of lands in the Oahe Reservoir area. In addition to moving families and buildings this work will involve assistance in the building of houses, purchasing of lieu lands by individuals in the tribe, consolidation of landholdings by exchanges, sales, and purchases, programing of funds received from land sales for intangible damages and for rehabilitation purposes. The tribal land purchase program is expected to involve a million or more

dollars. Work at Crow Creek and Lower Brule will be largely in connection with the Big Bend project. Appraisal will be made of lands in the Big Bend Dam and Reservoir area and lands needed for wildlife conservation purposes adjacent to the reservoir. Intangible damages likely to be claimed by the Indian people of these two Indian reservations, because of the building of the Big Bend Dam and flooding of lands in the Big Bend Reservoir, will be estimated.

Work relating to Bureau of Reclamation projects will be given somewhat greater emphasis in 1961 than was given during recent years. These funds will be spent largely at the Crow and Wind River Reservations. Investigations at Crow will be largely in connection with the Hardin irrigation unit. They will involve social-economic studies, landownership record work, leasing of trust land, and analysis of possible arrangements for handling Indian trust lands under the Hardin unit. The work at Wind River during 1961 will continue the land record and census work which has been underway for a year and one-half and service the economic study being made by the University of Wyoming under contract with the Bureau of Indian Affairs. Investigations in 1961 will be largely for engineering surveys on present and potential irrigation systems serving Indian trust lands and for soils, economics, landownership, and other data associated with irrigation projects on the reservation.

Increased attention will continue to be given during fiscal year 1961 to investigations directed to incorporating the benefits arising from Missouri River Basin projects into the economy of the reservations affected. The engineering and economic study at Fort Belknap is expected to be completed in 1961. Comprehensive surveys of human and physical resources and their future potentials will be continued at the Pine Ridge and Fort Peck Reservations. Work in fiscal year 1961 will be largely that of relating the findings of these studies to factors of Indian development and advancement, with the ultimate objective of assisting Indian people to become fully self-supporting and self-reliant in the social and economic fields. Similar programs will be initiated at the Crow and Blackfeet Reservations in fiscal year 1961.

Mr. UTZ. My name is E. J. Utz. I am Assistant Commissioner for Resources.

I am pinch-hitting for Mr. Stephens today, who would normally come up on this program. However, he is out of the city and if I may, I would like to outline very briefly the program which the Bureau of Indian Affairs will be carrying forward under the 1961 appropriation.

As we have only a small staff in connection with the Missouri Basin investigation, located at Billings, Mont., our work in the past has been very largely associated with the Corps of Engineers—the work of the Corps of Engineers and of the Bureau of Reclamation. In the construction of the Garrison Dam, 155,000 acres of the Fort Berthold Indian Reservation was acquired for the flood area.

The Fort Berthold Indians, as do the other Indians in the Missouri Basin, ordinarily reside in the bottomlands along the rivers. They keep their livestock there in the wintertime where they are protected. As a result of the taking of that large area, it was necessary for the Indians to move their homes from the river bottom area onto the uplands. A snowstorm today—and they have some real snowstorms out in North Dakota—would make a difficult situation for those people, and for their livestock.

We have been spending most of our time in this work, in helping to plan the relocation of the Indian people, as far as their homes are concerned, as far as their livestock and farming operations are concerned, to get them from the valley lands onto the uplands.

In connection with the construction of Oahe Reservoir, the Standing Rock Reservation and the Cheyenne Reservation were involved, and a substantial amount of river bottomland on those two reservations were in the flooding area and we had the same problem there, of re-

locating the people and setting them up on farming and livestock units in the upland areas.

In connection with Fort Randall Dam; Lower Brule and Crow Creek Reservations were involved as well as Yankton. The same problem arose there.

For 1961 we have two major jobs to do in connection with the Corps of Engineers' projects.

Mr. RABAUT. This is related now to your paper here?

Mr. UTZ. Yes, sir.

Mr. RABAUT. I want you to put this in the record.

Mr. UTZ. We will be glad to do that.

(The prepared statement of Mr. Utz is as follows:)

WORK TO BE PERFORMED IN THE MISSOURI RIVER BASIN BY THE BUREAU OF INDIAN AFFAIRS, 1961

Approximately one-third of the Missouri River Basin investigation program for fiscal year 1961 will be devoted to work in relation to the Corps of Engineers' projects. The largest single item under this category is for completion of the range and soil survey at Fort Berthold Reservation which was started during the close of fiscal year 1959. The survey will be completed in fiscal year 1961. Another major undertaking and the one carrying highest priority will be for continuation of the work at Standing Rock in connection with the moving and reestablishment of families due to the flooding of lands in the Oahe Reservoir area. In addition to moving families and buildings this work will involve assistance in the building of houses, purchasing of lieu lands by individuals in the tribe, consolidation of landholdings by exchanges, sales, and purchases, programing of funds received from land sales for intangible damages and for rehabilitation purposes. The tribal land purchase program is expected to involve a million or more dollars. Work at Crow Creek and Lower Brule will be largely in connection with the Big Bend project. Appraisal will be made of lands in the Big Bend Dam and Reservoir area and lands needed for wildlife conservation purposes adjacent to the reservoir. Intangible damages likely to be claimed by the Indian people of these two Indian reservations, because of the building of the Big Bend Dam and flooding of lands in the Big Bend Reservoir will be estimated.

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Mr. RABAUT. If you wish to revise your remarks you may.

Mr. UTZ. Thank you, sir.

BUREAU OF LAND MANAGEMENT

Mr. RABAUT. Who is here for Land Management? The justification will be included in the record.
(The matter referred to follows:)

BUREAU OF LAND MANAGEMENT—CONSTRUCTION AND REHABILITATION

Summarized financial data

Total obligations to June 30, 1959	$4,111,317
Allotment, fiscal year 1960	207,675
Prior year balance available	3,070
Total obligations, fiscal year 1960	210,745
Appropriations, fiscal year 1961	249,600
Total obligations, fiscal year 1961	249,600

JUSTIFICATION

1. *Land classification, $118,600.*—Classification and inventory of the public lands precedes development work by the Bureau of Reclamation, and other agencies, in order that the necessary coordination of land and water uses can be accomplished. Field data gathered is compiled in narrative, graphic, tabular, and cartographic report form and copies are provided participating and interested agencies. Such reports facilitate the orderly development and disposition of public lands and provide important land use capability and suitability data, grazing capacity, recreation and wildlife, timber values, necessary to the proper integration of public lands with lands under other ownership.

Land classification fieldwork for 1961 will cover 740,000 acres in the Tongue River and upper and lower Yellowstone River Basin. Public domain lands are widely dispersed throughout this area and because of this scattered land pattern, these combined basins will be classified as isolated tracts.

2. *Cadastral survey, $131,000.*—The cadastral surveys are necessary to the basin program to provide accurate official boundaries by legal subdivision; for securing rights-of-way; for canals and reservoirs; the laying out of farm units; and to provide horizontal control for mapping. It is, therefore, necessary that the cadastral survey work proceed well in advance of the requirements of the development agencies. The 1961 program will provide for survey and resurvey of 288,000 acres, coordinated with the program of these agencies.

Mr. WELT. My name is Mark B. Welt, budget and finance officer.
Mr. RABAUT. Please submit your statement for the record.
(The statement follows:)

BUREAU OF LAND MANAGEMENT

1961 ESTIMATE FOR MISSOURI RIVER BASIN PROJECT

The 1961 estimate for the Missouri River Basin project under the appropriation, "Construction and rehabilitation, Bureau of Reclamation" includes $249,600 for the Bureau of Land Management. That Bureau provides cadastral surveys and land classification required by the project.

Land classificotion, $118,600.—Lands are classified to determine the best use in order that the necessary coordination of land and water uses can be accomplished. These classifications facilitate the orderly development and disposition of public lands and provide important land use and capability and suitability data. The programs for 1961 will cover completion of 740,000 acres in the Tongue River and the upper and lower Yellowstone River Basin.

Cadastral survey, $131,000.—The cadastral surveys are necessary to the basin program to provide accurate and official boundaries by legal subdivisions. The 1961 program will provide for survey and resurvey of 288,000 acres to be coordinated with the programs of other agencies.

GARRISON DAM

Mr. RABAUT. All we want to know from you is how much for Garrison.

Mr. WELT. I will have to supply that information for the record.

Mr. RABAUT. Supply that for the record and we will place this in the record at this point.

(The matter referred to is as follows:)

The 1961 estimate for the Bureau of Land Management for work in the Missouri River Basin includes $40,000 for cadastral surveying on the Garrison diversion unit of the Missouri River Basin project. It is planned to do dependent resurveys on 80,640 acres on the Souris unit, a part of the Garrison diversion unit. This work will be performed concurrently with preliminary studies by the Bureau of Reclamation and is principally to reestablish boundary lines for land utilization and farm unit development by that Bureau.

BUREAU OF MINES

Mr. RABAUT. The Bureau of Mines.

The justification will be included in the record.

(The matter referred to follows:)

BUREAU OF MINES—CONSTRUCTION AND REHABILITATION

Summarized financial data

Total obligations to June 30, 1959	$1,853,484
Allotment, fiscal year 1960	122,850
Application of prior year funds	76
Total obligations, fiscal year 1960	122,926
Allotment, fiscal year 1961	140,000
Total obligations, fiscal year 1961	140,000

JUSTIFICATION

The Missouri Basin has entered a new era of economic growth based in large measure upon its diversified mineral assets—the fuels, minerals, and metals that are basic requirements for the new industry that it needs so acutely to diversify its still predominantly farm economy, stabilize its income, and retain its migrant youth who seek greater opportunity.

Since 1946, the value of mineral production in the 10 States wholly or in part within the basin has increased $1,653,520,000, or 228 percent. Placed in perspective, the record 1957 mineral production was worth $2,377,347,000, or just 4.6 percent less than cash receipts from irrigated and dryland farm crops in the same States.

Without power and water, minerals remain in the ground. It is imperative, therefore, that the significance of this industrial development be recognized, that more adequate mineral information be made available to construction agencies, and that it be accorded the consideration it deserves in water and power project planning.

The function of the Bureau of Mines is to determine how, in relation to specific water development projects, the mineral resources of the area may be recovered with minimum waste, treated with maximum efficiency, and used most effectively to further and expand the industrialization and new prosperity of the basin.

The increase will provide for the following additional work:

1. Investigations on mineral resources (except oil and gas) of the Milk River division in Montana.

2. Accelerate studies on preparation, storage, and pulverization on coal and lignite, particularly the 2.5 million tons of stockpiled lignite at Garrison Dam in North Dakota.

3. Expansion of canal-lining studies for Reclamation's Lower Cost Canal Lining Committee to reduce both the loss of water by seepage and the cost of lining canals by sediment and chemical sealants.

Mr. DUPUY. I am Leon Dupuy.

Mr. RABAUT. How much have you spent to date on the Missouri Basin?

Mr. DUPUY. $1,853,484. Up until June 30, 1959.

Mr. RABAUT. What will be the total cost altogether for your program?

Mr. DUPUY. For the next 10 years, do you mean, or until when?

Mr. RABAUT. For the duration of the project. I do not think we have any for 10 years, have we?

Mr. DUPUY. I do not remember exactly how many years that project is supposed to run, but I remember this figure. If we did everything that we should do, we should spend at the present value of the dollar, approximately $300,000 a year for the duration of the project. I do not remember how many years the project lasts. That slipped my mind. We more or less have to live from year to year.

Mr. RABAUT. It says here:

GARRISON DAM LIGNITE STUDIES

Accelerated studies on preparation, storage, pulverization on coal and lignite, particularly 2.5 million tons of stockpiled lignite at Garrison Dam in North Dakota.

Now, what is that going to cost? We have been at this a long time. How long will we be at this?

Mr. DUPUY. Just how long that specific part of the work will take is hard to conjecture at the moment because it involves research.

Mr. RABAUT. You have been studying the stockpile?

Mr. DUPUY. That is correct. We take temperatures on it——

Mr. RABAUT. How long have you been studying the stockpile and what does it cost?

Mr. DUPUY. Oh, about a thousand dollars a year—$900 to $1,000.

Mr. RABAUT. For how many years have you been at that?

Mr. DUPUY. Five or six years, as I remember. All we do is record the temperatures——

Mr. RABAUT. How long will you study that?

Mr. DUPUY. As long as it is available, because that was a new method of stockpiling——

Mr. RABAUT. When did you start studying the stockpile?

Mr. DUPUY. About 5 or 6 years ago. I do not remember exactly.

Mr. RABAUT. What are we going to do with it after we get through with the study?

Mr. DUPUY. The information that is gained there, sir, is of special value in handling lignite, which is a major resource of North and South Dakota, but particularly North Dakota. Lignite is the fuel which will probably be most abundant in the years to come for steam-power to supplement the hydropower which unquestionably will eventually be short.

Now, up until the time this stockpile study was started, there was very little known about how to stockpile lignite because of the fact that it ignites spontaneously so easily. Hence, a powerplant could not carry a day-to-day stockpile of any size without it catching fire.

This study has so far been very successful in demonstrating how lignite can be stored. The studies going on at the moment in connection with that individual stockpile are very minor in cost. They go out there a couple of times a year and take a few measurements and

dig a few test pits to test the quality of the material and its deterioration rate.

Now, the other research that is connected with that lignite has to do with methods of handling the material and processing it so that we can get greater efficiency out of it——

GARRISON DIVERSION UNIT

Mr. RABAUT. How much money is in your budget or how much money do you think you will use on account of Garrison?

Mr. DUPUY. The Garrison diversion unit, we have nothing for it this year. We had a project in there for Garrison and we deleted it last fall.

Mr. RABAUT. If these projects were not here at all, you would still be making the studies you are making, would you not, on the stockpile?

Mr. DUPUY. Not on this particular one.

Mr. RABAUT. You would neglect this one stockpile?

Mr. DUPUY. It is the Missouri Basin project, and that has been going on a long time. It will be continued, there is no question about it.

Mr. RABAUT. Without objection, we will place your remarks in the record.

(The documents referred to are as follows:)

STATEMENT IN SUPPORT OF THE 1961 BUDGET ESTIMATE, MISSOURI RIVER BASIN PROGRAM

A long overdue industrial renaissance based on minerals and fuels is now underway in the Missouri Basin—and is destined to expand. Since the origin of the Missouri Basin project in 1946, the value of annual mineral production in the 10 basin States has increased $1.6 billion, or 228 percent. Minerals production in 1957, a record year, were valued at nearly $2.4 billion, or just 4.6 percent less than cash receipts from irrigated and dry land farm crops in the same States.

Water and power, plus a favorable economic climate, are essential to continued mineral development and thus to the welfare of the Missouri Basin, which economists often have cited as a classic example of an unstable economy resulting from overdependence on agriculture. The stabilizing influence of diversification into minerals already is apparent and should be nurtured, for mineral and fuel production are basic prerequisites to the influx of other industries.

A function of the Bureau of Mines is to determine how, in relation to specific water development projects, the mineral resources of the area may be recovered with minimum waste, treated with maximum efficiency, and used most effectively to further and expand the industrialization and prosperity of the basin. Water, to the mineral industry, is a major raw material.

During fiscal year 1961 mineral examinations will continue to be made at proposed reservoir sites to determine the effects of each such project on mineral resources and industries of the area. Losses from inundation and benefits from water storage will be ascertained. Preparation, storage, and pulverization studies will be accelerated on coal and lignite, particularly the 2.5 million tons of stockpiled lignite at Garrison Dam in North Dakota.

Further research is planned on water-barrier materials and methods in cooperation with the Bureau of Reclamation's Lower Cost Canal Lining Committee. Mineral resources will be inventoried in the Milk River division of Montana to provide basic data for Bureau of Reclamation planning investigations in that area.

The Bureau will continue its surveys of petroleum and natural-gas fields, pipelines, and refineries, and engineering studies of factors affecting maximum ultimate recovery. Petroleum is the region's No. 1 mineral product in terms of production value. A new investigation is scheduled on water requirements in oilfields, especially for water-flood secondary recovery projects that have become significant in the region relatively recently.

Mr. JENSEN. I cannot quite understand why we need to spend a lot of money to learn how to stockpile lignite coal. We know the best place to store it is right where it is—in the ground.

Now lignite coal usually lies close to the surface. You generally strip mine lignite coal and it is a very easy matter to strip the dirt off the top of lignite deposits and mine it like coal.

For that reason I cannot for the life of me understand why it is necessary to spend a lot of money to learn how best to store lignite coal when the facts are, as I have just stated, the best place to store it is where it is right now. Will you not agree?

Mr. DUPUY. No, sir.

Mr. JENSEN. Well, tell me why.

Mr. DUPUY. In the first place, we are not spending a whole lot of money. We are spending less than a thousand dollars a year on the stockpile. This is a very small part of the work that we are doing. Most of the work we are doing is in other fields. The stockpile was made when they built that dam. The coal was there and would have been wasted.

Mr. JENSEN. So you threw it into a hollow and covered it up with dirt, did you not?

Mr. DUPUY. No, we did not do any such thing.

Mr. JENSEN. You didn't?

Mr. DUPUY. No, sir.

Mr. JENSEN. Well, I am learning something. Go ahead. That is what I was told.

Mr. DUPUY. We built special piles out there and used a tamping device, a sheep's-foot roller in order to compact the coal so that air would not circulate through it.

Before this time—we have printed publications on this subject and I can send you copies. I can briefly summarize them.

Mr. JENSEN. Put the explanation in the record.

(The information referred to follows:)

SUMMARY OF BUREAU OF MINES PUBLICATIONS DESCRIBING LIGNITE STORAGE PILE RESEARCH, GARRISON DAM, N. DAK. (MISSOURI BASIN PROJECT)

At the request of the U.S. Army Corps of Engineers, the Bureau of Mines provided technical advice and assistance in the storage of lignite at Garrison Dam, Riverdale, N. Dak.

During the construction of the Garrison Dam, large quantities of lignite had to be exacavated. Unsuitable as fill material, it could not be used in constructing the dam. Direct marketing of the lignite, which was estimated to exceed the total yearly mine production in the market area, would have disrupted the lignite industry. To conserve this huge supply of energy, it was stockpiled for future utilization.

The Corps of Engineers did the actual stockpile construction work. With completion of the excavation phases for the dam, the stockpiling of lignite termi-

nated. Some of the lignite in the first two stockpiles has been used at the central heating plant at the damsite. The plast pile—No. 8—is now being used for that purpose. The lignite now in storage totals 2.5 million tons. The last pile—No. 8—was completed with the end of excavation phases for the spillway in the winter of 1956.

The first lignite was excavated and stockpiled in 1948. Eight stockpiles have been constructed during the various phases of excavation for the dam.

The primary consideration in storage operations is to prevent spontaneous heating. The first stockpiles were experimental, being designed to develop a safe and practical storage technique.

Subsequent inspections of the piles are conducted to observe and detect conditions that may encourage spontaneous heating. In addition, data and information are obtained concerning the changes that occur in the piles during extended storage. Development of suitable storage practices for North Dakota lignite benefits and encourages future industrial utilization of the large lignite despoits available for exploitation in the Missouri Basin.

During periodic inspection of the stockpiles, temperature measurements and gas sample collections are made at established stations in the largest of the stockpiles—No. 5. At yearly intervals, samples are cut of the lignite at various pile depths and positions. The lignite samples are analyzed to assess the degree of loss in heating value.

No heating difficulties have been reported in the piles built by the method adopted as a result of the early trials.

The method of stockpiling adopted was to dump the lignite in windrows, spread it with a bulldozer in layers successively 2 feet deep each. The lignite was compacted by running successive passes of a chopper-type roller, followed by a sheep's-foot roller. Each type of roller was pulled by a caterpillar tractor. The effect was to break up large lumps and compact the material to prevent free circulation of air. Between passes, a bulldozer leveled and settled the material; compaction was increased by additional passes of the sheep's-foot roller

A bulldozer keeps the piles level during construction and helps to assure compaction. The side slope of the pile is maintained at about 17° to 18°. Firmly pressed edges are assured by compacting excess material at the edges which are then "dressed" by the bulldozer

In building the last piles, added efficiency was obtained by decreasing the windrow depth to 1 foot.

In the early experimental piles, compaction was attempted by just running the carryalls and tractors over the piles. It was found that too much air circulated around the large lumps still unbroken in the pile.

On one pile—No. 2—an attempt was made to surround the pile with an earth-clay mixture to prevent passage of air through it.

The method was unsuccessful. The sand and gravel base of the earthen sides provided passageways for air. Maintenance of the earth-clay sides was difficult and expensive. Recovery of uncontaminated coal (i.e., lignite) was found difficult.

Lignite storage pile No. 5, on which a continuous sampling record has been kept since 1953, is the largest pile. It contains 774,000 tons. It is 1,000 feet square on the base, 40 feet high, and 680 feet square on top.

A pattern of permanent sampling stations was designed for the pile. Five stations on top of the pile permit withdrawal of gas samples at depths of 35, 25, 15, and 5 feet below the pile surface. Temperatures are measured at each of these stations at 2-foot intervals to the 35-foot depth.

There are 28 other stations on the pile sides and 4 on top, each 3.5 feet deep. Temperature and gas data are collected at each.

Samples for fuel analysis are obtained annually with the assistance of the Corps of Engineers, adjacent to each of the five deep stations.

RESULTS OF SAMPLING

Temperatures at the surface, of course, respond to seasonal fluctuations. Similarly, gas compositions reflect minor air infiltration, the rate of which is influenced by wind pressures, continually changing thickness (from drifting) of protective slack layer on the surface of the piles, and changes in barometric pressure.

From September 1954 to August 1957, the average carbon dioxide content of the pile decreased from 12.7 to 10.3 percent, with a rise in oxygen content from 2.3 to 7.7 percent. The total carbon dioxide plus oxygen content increased to 18 percent. Theoretical maximum carbon dioxide content would be about 21 percent.

Methane content ranged from 0.2 to 2.1 percent. Nitrogen was the major constituent of all gas samples, ranging from 75.3 to 82.6 percent. Samples showed there is stratification of the gases in the pile.

Temperature readings showed no consistent pattern in the summer season. All temperatures, however, have shown a general decrease between September and December. A rise was recorded in the December to June interval. The range of temperature variation is small. The average temperature of the pile appears to be declining. The amount varies according to the depth. The largest decline recorded is between 3 and 20 feet deep, ranging from 2.8 to 9.6 degrees from 1954 to 1957.

An example of temperatures taken in August 1957 demonstrates the range of operations. At 3 feet, the temperature was 65°; at 15 feet, it was 58.6°; at 35 feet, it was 57.7°.

The only heating that has occurred has been in slack drifts. Wind-blown slack drifts like snow. If the drifts are allowed to get deep, they start to heat. One pile started to burn before the hazard was recognized. It was quickly extinguished by spreading the slack to cool it.

Drifting is now controlled in the same way as snow with "snow fences." When drifts accumulate, they are spread out over the pile again. The slack itself, if not too deep, actually protects the piles.

Analysis of samples of the coal taken annually indicate there has been little deterioration. The average heating value from all stations decreased only 150 B.t.u. per lb., or 1.25 percent, from August 1953 to August 1957.

Rain erosion is a problem that causes some concern.

CONCLUSIONS REACHED TO DATE

The method of stockpiling lignite has proven successful. No heating difficulties are being experienced under the present pile control system.

Records of temperature and composition of pile gases reflect a progressive increase in stability of the stockpiles. On the basis of proximate and ultimate analysis of pile depth samples, storage deterioration is insignificant.

Wind and rail erosion on the slacked surface of the large piles is a major maintenance problem. Weed growth on the piles has helped stabilize the surface slack, but they also create a fire hazard.

Recent samples show that, despite the intensive compaction process used, 72 percent of the stockpiled lignite is plus one-fourth inch in size.

THE FUTURE

Until the stockpiles are sold or used, valuable data can be obtained by continuing the recording of temperature, sampling of gases, and working out simple low-cost maintenance procedures. Attention should also be given to developing preparation and pulverization techniques that will help assure the use of the lignite now in storage.

Recent increases in use of lignite for fuel-power generation have been large. Methods developed by the Bureau of Mines on processing and storing lignite are being adopted by industry.

PUBLICATIONS

1. "Storage of Low-Rank Coals," by R. R. Allen and V. F. Parry. Bureau of Mines Report of Investigations No. 5034, February 1954. The above publication presents the details of stockpile construction.

2. A new report of investigations is in process of preparation and will be released at an early date. It will bring the earlier report up to date.

3. Progress reports. Periodically, reports are made to the cooperating agencies of the Missouri Basin project. Nine detailed progress reports have been duplicated for them so far, as well as regular quarterly summary reports.

NATIONAL PARK SERVICE

Mr. RABAUT. National Park Service. Who is here from National Park Service?

Mr. LUDDEN. I am Robert W. Ludden, Chief of the Branch of Recreational Surveys. I have with me Carl A. Burroughs, our staff archeologist.

Mr. RABAUT. You have a statement here and without objection we will place this in the record at this point, along with page 2415–A of the justifications.

(The matter referred to follows:)

National Park Service—Construction and Rehabilitation

Summarized financial data

Total obligations to June 30, 1959		$3,322,018
Allotment, fiscal year 1960	$228,150	
Prior year balance available	6,482	
Total obligations, fiscal year 1960		234,632
Allotment, fiscal year 1961		244,000
Total obligations, fiscal year 1961		244,000

JUSTIFICATION

(*a*) *Recreation plans and surveys, $71,200.*—The estimate of $71,200 is an increase of $5,878 over the $65,322 available for obligation in the 1960 fiscal year.

With the dramatic nationwide increase in park and recreation area use, the recreation value of reservoirs constructed by the Bureau of Reclamation and the Corps of Engineers is becoming increasingly significant. The public interest in these values cannot be realized without adequate planning and arrangements for their management.

The National Park Service program of recreation plans and surveys is concerned with recreation resources in the Missouri River Basin as they are affected by, or related to, water control projects of the Bureau of Reclamation and Corps of Engineers. This program is administered through three related activities: (1) Investigation and planning on specific water control projects, based on Bureau of Reclamation schedules and covering investigation of proposed water control projects, to determine their impact on recreation resources and existing recreation developments, to discover recreation opportunities which may result from the projects, and to develop preliminary plans for public use which may be anticipated; (2) reservoir management planning concerned with resulting reservoir recreation areas, based on Bureau of Reclamation schedules and requests received from administering agencies. This activity is growing, not only from the standpoint of negotiation of agreements and preparation of reservoir management plan material but, also, the followup review on areas already being administered and requests for assistance on development and management of these areas. The Service is responsible for determining the appropriate agency to administer reservoir recreation areas and for negotiation of agreements therefor. In addition, it includes preparation of information for reservoir management plans and supplemental advisory planning assistance; (3) recreation surveys' comprehensive planning for the utilization and reservation of recreation resources in the basin. The recreation basinwide survey report will be published early in the 1960 fiscal year. Followup action in 1961 on proposals and recommendations in this report will be required to assist the States and local governments in developing more detailed plans. The value of the comprehensive report will then be more ade quatelyrealized. This followup work will involve assistance on the preparation oflegislation, partial assistance on the development of statewide plans and surveys, and individual area reconnaissance trips.

During the 1959 and 1960 fiscal years, the recreation plans and surveys' activity was programed below previous levels to reflect anticipated tapering off of certain work. Although the investigation program of the Bureau of Reclamation in the basin was reduced somewhat in fiscal years 1959 and 1960, Service responsibilities are concerned also with construction and subsequent management phases.

(*b*) *Archeological and historical surveys and excavations, $172,800.*—The estimate of $172,800 is an increase of $3,490 over the $169,310 available for obligation in the 1960 fiscal year. It is needed to enable the Service in cooperation with the Smithsonian Institution, and with State and local institutions, to keep abreast of the salvage and preservation of archeological remains, many of which are rapidly disappearing because of the construction work now underway.

The program to save archeological and historical values in advance of destruction from water control activities has made some progress but the progress has not kept pace with the rate of site flooding and the losses envisioned for fiscal year 1960. Fewer than 10 percent of the known prehistoric sites have been partially excavated; and these partial excavations involve less than 5 percent of the site in 9 out of 10 instances. Salvage efforts must be continued if more than token amounts of threatened archeological resources are to be saved.

Prehistoric people lived primarily along the riverbanks, only journeying to the plains on hunting and foraging expeditions. The surviving evidence of some entire groups is known only from areas where water control projects have been activated or are planned. Thus, priceless segments of America's prehistory will be lost forever when the reservoirs are filled

In fiscal year 1960 funds were appropriated for the start of construction on a number of new projects which previously had not been programed. This acceleration of construction activities further complicates the programing of salvage work throughout the Missouri River Basin in an attempt to rescue this scientific data before it is flooded, and it will not be possible during the 1961 fiscal year to schedule archeological investigations in all of the reservoirs where new starts have been authorized.

A breakdown of archeological salvage projects and amounts proposed for the 1961 fiscal year is shown as follows:

Garrison Reservoir, N. Dak	$1,000
Oahe Reservoir, N. Dak. and S. Dak	69,000
Big Bend Reservoir, S. Dak	75,300
Fort Randall Reservoir, S. Dak	1,000
Red Willow Reservoir, Nebr	2,000
Wilson Reservoir, Kans	3,500
Milford Reservoir, Kans	3,000
Kasinger Bluff Reservoir, Mo	5,000
Miscellaneous historical investigations, various	13,000
Total	172,800

The 1961 budget estimate under the heading "Construction and rehabilitation, Bureau of Reclamation" includes $244,000 for allocation to this Service, of which $71,200 is for recreation plans and surveys, and $172,800 is for archeological and historical surveys and excavations in the Missouri River Basin.

RECREATION PLANS AND SURVEYS

This phase of the program is concerned with the recreation resources in the Missouri River Basin as they are affected by, or related to, water control projects of the Bureau of Reclamation and Corps of Engineers. The program is administered through the following three related activities:

1. *Investigation and planning.*—Includes investigation of proposed water control projects to determine their impact on recreation resources and the recreation opportunities which may result, and development of preliminary plans for anticipated public use. Field investigations and reports are scheduled for seven units during 1961 involving one or more reservoirs each. Included will be completion of a planning report involving more detailed investigation and preparation of the general development plan for the complex and potentially significant Devil and Stump Lakes restoration in North Dakota. Advisory assistance for the Corps of Engineers, involving joint field investigations and review of recreation master plans, may amount to four or five projects, plus occasional special studies. There will also be recurring Service participation on four established advisory council's.

2. *Reservoir management planning.*—Includes determination of appropriate agency (Federal, State, or local) to administer reservoir recreation areas and negotiation of agreements therefor, preparation of management plans, and furnishing of supplemental advisory planning assistance after assumption of control by the agency. The 1961 program contemplates that this Service will negotiate agreements and prepare the recreation portion of reservoir management plans on three or four reservoirs. Followup responsibilities will include field review and reports on an estimated 42 reservoir recreation areas already being administered. Supplemental planning assistance is less predictable but may involve at least 15 requests for aid on development and management matters.

3. *Recreation surveys.*—The recreation basinwide survey report is being published during the 1960 fiscal year. Followup action in 1961 on proposals and recommendations in the report will be required to assist the States and local governments in developing more detailed plans. This followup work will involve assistance in the preparation of legislation, partial assistance in the development of Statewide plans and surveys, and individual area reconnaissance trips, and may

require the preparation of appendixes to the report, incorporating significant findings in more detail. The planning and construction of many new reservoirs—in the Plains States, especially—has and will materially affect recreation habits and will increase the need for additional specific planning.

ARCHEOLOGICAL AND HISTORICAL SURVEYS AND EXCAVATIONS

The purpose of this program is to recover scientifically adequate samples of the archeological and historical remains prior to their loss by flooding in reservoirs under construction in the Missouri River Basin. The campsites, villages, and burial grounds of prehistoric and historic peoples are concentrated along the rivers, in the bottom lands, and on the low terraces which will be flooded as the reservoirs are completed and filled. Unless the materials and scientific data are recovered before flooding, they are forever lost.

Each reservoir in this basin contains a segment of this country's prehistory which, more often than not, is unique and not duplicated elsewhere. Adequate samples must therefore be recovered from each reservoir to complete the prehistoric picture. Failure to recover any segment before flooding will result in gaps in the prehistoric picture which can never be filled.

A list of the major projects scheduled for salvage operations during 1961 are shown in the justification previously submitted to this committee.

OUTDOOR RECREATION

Mr. RABAUT. How does your office have a relation with this Outdoor Recreation Resources Review Commission?

Mr. LUDDEN. We are working very closely with them, sir, and providing them with information—inventory data and so forth.

Mr. RABAUT. What is your program costing today?

Mr. LUDDEN. I will have to furnish that for the record, sir.

Mr. RABAUT. For the duration of the Missouri Basin.

Mr. LUDDEN. It would depend largely on the Bureau's program.

Mr. RABAUT. Supply it to the best of your ability.

(The information referred to follows:)

Beginning with the 1945 fiscal year through June 30, 1959, the National Park Service had expended or obligated about $3,383,000 in connection with recreational planning and surveys and archeological investigations and salvage. Of this amount, about $1,516,000 was for recreational planning and the balance for archeological phases of the work. The program for the 1960 fiscal year totals $234,632 and the estimate for 1961 is $244,000. None of the funds utilized by the National Park Service in connection with this program are used for the construction of physical facilities.

Mr. RABAUT. In the program that is being carried out, how much money have you recommended for it?

Mr. LUDDEN. Our program is for $244,000.

Mr. RABAUT. Perhaps I am not making myself clear. What is the cost of the facilities in the Missouri Basin which you make recommendation for?

Mr. LUDDEN. Well, our program is divided into two parts, recreation planning—that is assistance to the Bureau and to the States—and then the program of archeological and historical surveys and excavations. The program does not provide for construction. Our prime purpose is to prepare suggested recreation plans for the States, to encourage the States or other units of local government to take over the administration of the recreation features of these reservoirs after they are constructed——

RECREATIONAL FACILITIES

Mr. RABAUT. I do not think I have made myself clear to you.

Now you say at one place in the testimony here that there was $1 million last year for recreation facilities. This year it is over $2 million, or around $2 million.

How much are you recommending for recreational facilities in this Missouri Basin?

Mr. LUDDEN. I would have to furnish that for the record too, sir, but those are suggested developments that would not be at Federal expense.

Mr. RABAUT. Not at Federal expense?

Mr. LUDDEN. We are suggesting them as——

Mr. RABAUT. You would be surprised it you sat in this room here and saw the figures——

WEBER BASIN PROJECT

Mr. DOMINY. The one to which you refer was the Weber Basin project where recreation was an integral part of the Federal authorization.

Now the ones that Mr. Ludden makes reference to here are in the Missouri River Basin, where we did not have any special allocation to recreation. At the same time, whenever we build a dam and create a reservoir, the public flocks to it.

Mr. RABAUT. We know all about it.

Mr. DOMINY. The Park Service has been cooperating very excellently with us because they are knowledgeable in the public use and recreational aspects of public areas and we call upon them for a layout of public use facilities designed to fit the kind of situation that exists. They help us make the determination that the use is of local interest only or it is of statewide, or regionalwide, or perhaps in some instances of national interest.

Now if it is of national interest they actually plan to take over the operation and maintenance of it.

Mr. RABAUT. We will reconvene at 10 o'clock in the morning.

FRIDAY, MARCH 4, 1960.

Mr. RABAUT. The committee will be in order.

Operation and Maintenance

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Eklutna project, Alaska	$258,317	$269,000	$280,500
2. Yuma area projects, Arizona-California	734,919	525,630	658,410
3. Colorado River front work and levee system, Arizona-California-Nevada	1,453,723	1,493,234	1,865,930
4. Parker-Davis project, Arizona-California-Nevada	2,496,350	2,537,189	2,740,570
5. Boulder Canyon project, Arizona-Nevada	1,310,612	1,445,000	1,333,000
6. Boulder City, Nev	584,732	769,312	
7. Cachuma project, California	71,500	73,035	77,000
8. Central Valley project, California	5,827,331	6,487,000	6,101,000
9. Kings River project, California	2,300	1,460	15,000
10. Solano project, California		54,982	57,600
11. Colorado-Big Thompson project, Colorado	787,496	950,123	963,450
12. Grand Valley project, Colorado			59,500
13. San Luis Valley project, Colorado	6,217	7,785	8,000
14. Boise project, Idaho-Oregon	464,714	405,675	424,000
15. Minidoka area projects, Idaho-Wyoming	1,213,734	1,516,673	2,007,360
16. Hungry Horse project, Montana	544,278	534,946	647,000
17. Milk River project, Montana	84,698	291,799	50,351
18. North Platte project, Nebraska-Wyoming	267,059	253,415	290,500
19. Carlsbad project, New Mexico	15,302	13,771	15,000
20. Middle Rio Grande project, New Mexico	1,028,165	1,244,912	1,300,000
21. Rio Grande project, New Mexico-Texas	1,514,356	1,520,500	1,460,000
22. W. C. Austin project, Oklahoma	10,098	8,940	11,800
23. Rogue River Basin project, Talent division, Oregon		56,904	86,000
24. Klamath project, Oregon-California	116,879	110,701	115,500
25. Falcon project, Texas	9,320	4,866	5,000
26. Provo River project, Utah	20,415	19,317	23,750
27. Columbia Basin project, Washington	4,791,240	5,045,758	6,640,000
28. Yakima project, Washington	655,413	693,862	629,000
29. Kendrick project, Wyoming	338,135	271,277	349,000
30. Riverton project, Wyoming	109,867	113,845	112,000
31. Shoshone project, Wyoming	166,410	173,172	128,000
32. Missouri River Basin	5,387,949	5,378,152	5,726,600
33. Soil and moisture conservation operations	791,385	936,922	999,229
34. Halogeton (poisonous weed) control	53,140	73,810	71,000
35. Projects financed entirely with funds advanced	105,058	126,627	127,600
Total program costs	31,221,112	33,409,594	35,378,650
36. Relation of costs to obligations:			
Costs financed from obligations of other years, net (−)		−1,268,140	
Obligations incurred for costs of other years, net	145,078		91,590
Total program (obligations)	31,366,190	32,141,454	35,470,240
Financing:			
1959 appropriation available in 1958	227,289		
Non-Federal funds advanced by water users:			
Unobligated balance brought forward	−1,385,488	−1,332,482	−1,085,233
New advances	−3,706,919	−3,491,480	−3,398,180
Unobligated balance carried forward	1,332,482	1,085,233	913,173
Unobligated balance no longer available	498,046		
New obligational authority	28,331,600	28,402,725	31,900,000
New obligational authority:			
Reclamation fund, special fund	$23,083,483	$23,072,400	$26,496,000
Colorado River Dam fund, Boulder Canyon project	2,078,900	2,030,000	1,335,000
General fund	3,169,217	3,300,325	4,069,000
Appropriation	28,331,600	28,402,725	31,900,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	3,872	3,825	3,769
Full-time equivalent of all other positions	75	83	84
Average number of all employees	3,638	3,683	3,701
Number of employees at end of year	3,704	3,771	3,727
Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
Average salary of ungraded positions	$5,228	$5,412	$5,481
01 Personal services:			
Permanent positions	$19,911,058	$20,500,965	$20,967,944
Positions other than permanent	274,659	287,288	313,499
Other personal services	683,487	803,110	747,040
Total personal services	20,869,204	21,591,363	22,028,483
02 Travel	400,674	399,325	466,230
03 Transportation of things	74,257	87,350	104,895
04 Communication services	316,343	330,975	338,040
05 Rents and utility services	462,105	399,225	411,790
06 Printing and reproduction	25,661	33,159	27,715
07 Other contractual services	3,079,526	2,951,676	3,390,574
Services performed by other agencies	218,203	244,629	309,242
08 Supplies and materials	3,150,997	2,812,245	3,076,249
09 Equipment	761,184	799,209	1,420,454
10 Lands and structures	1,296,825	1,477,038	2,822,846
11 Grants, subsidies, and contributions	1,284,835	1,312,500	1,376,452
13 Refunds, awards, and indemnities	34,309	32,675	32,455
15 Taxes and assessments	25,149	28,750	30,241
1959 appropriation available in 1958	−227,289		
Subtotal	31,771,983	32,500,119	35,835,696
Deduct quarters and subsistence charges	405,793	358,665	365,426
Total obligations	31,366,190	32,141,454	35,470,270

Mr. RABAUT. Operation and maintenance, $36,707,029. We will insert pages 339 to 399.

(The pages above referred to are as follows:)

OPERATION AND MAINTENANCE—GENERAL STATEMENT

Summarized financial data

Fiscal year 1960:	
Appropriation	$28,402,725
Funds advanced by water users	3,816,789
Funds advanced by States and municipalities	170,457
Fort Peck continuing fund	900,000
Total obligations, fiscal year 1960	[1] 33,289,971
Fiscal year 1961:	
Appropriation	31,900,000
Funds advanced by water users	3,624,140
Funds advanced by States and municipalities	159,150
Fort Peck continuing fund	1,024,000
Total obligations, fiscal year 1961	36,707,290

[1] Excludes obligations from emergency funds in fiscal year 1960 for purchase of power requirements as a result of less than normal water year.

The fiscal year 1961 request is $3,497,275 above the fiscal year 1960 operation and maintenance appropriation. The principal part of the increase represents the requirement for replacements and additions, inclusion of an increase in the Columbia Basin project drainage construction program, and the inclusion in the operation and maintenance program of those facilities and projects on which construction is scheduled to be completed in fiscal year 1960.

The Bureau of Reclamation fiscal year 1961 program provides for operation and maintenance of 37 projects or divisions of projects; continuance of work on the Colorado River front work and levee system; soil and moisture conservation operations; and Halogeton control on Bureau lands. The latter three items are nonreimbursable. The appropriation estimate does not include funds for the Fort Peck project transmission system, operation and maintenance of which are financed from a revolving fund.

The number of projects given above includes the Yuma area projects, a consolidation of 5 projects as 1 project; the Minidoka area projects, a consolidation of 3 projects as 1 and the Missouri River Basin as 1 project, 23 units of which will be completed or partially completed and in operation and maintenance status during fiscal year 1961. Of the 36 projects (exclusive of Missouri River Basin project), 13 will be operated entirely with appropriated funds, 7 will be operated entirely with funds advanced by the water users, while 16 will be operated with a combination of appropriated and advanced funds.

As a permanent activity, the Bureau of Reclamation operates and maintains only power projects and power facilities and other reserved works of multipurpose projects. Completed irrigation facilities are turned over to water users organizations for operation and maintenance as rapidly as the necessary agreements can be consummated. Pending completion or until such agreements are executed, the systems are operated by the Bureau with appropriated or advanced funds. In fiscal year 1961, the Bureau of Reclamation will serve irrigation water to approximately 1,055,472 acres through distribution facilities operated and maintained with appropriated or advanced funds.

Under its program of power operations, the Bureau will operate and maintain directly or by contract during fiscal year 1961 (exclusive of Fort Peck) a total nameplate capacity of 5,201,550 kilowatts in 43 powerplants, an increase of 51,000 kilowatts over 1960, and approximately 9,814 circuit miles of transmission lines, an increase of approximately 683 circuit miles.

Of the appropriation requested, approximately 90 percent will be returned to the United States from power and irrigation revenues and revenues from the sale of municipal and industrial water. The balance, which is nonreimbursable and nonrevenue producing, is made up principally by two items, the Colorado River front work and levee system and the program for soil and moisture conservation operations.

The total appropriation requested for all operation and maintenance activities of the Bureau of Reclamation represents a minimum budget that will permit operation of the Bureau's electric facilities and delivery of irrigation water to the farms of all reclamation projects.

Operation and Maintenance

Appropriation allotments and funds advanced, fiscal year 1960 and fiscal year 1961

State	Project	Allotments			Funds advanced			Total project obligations		
		Actual, fiscal year 1960	Estimate, fiscal year 1961	Increase or decrease	Fiscal year 1960	Fiscal year 1961	Increase or decrease	Fiscal year 1960	Fiscal year 1961	Increase or decrease
Alaska	Eklutna	$268,000	$279,500	+$11,500				$268,000	$279,500	+$11,500
Arizona-California	Yuma area projects	233,900	344,270	+110,370	$305,955	$303,040	−$2,915	539,855	647,310	+107,455
Arizona-California-Nevada.	Colorado River front work and levee system.	1,476,234	1,885,930	+409,696				1,476,234	1,885,930	+409,696
	Parker-Davis	2,383,189	2,611,070	+227,881	160,000	150,000	−10,000	2,543,189	2,761,070	+217,881
Arizona-Nevada	Boulder Canyon	1,430,000	1,335,000	−95,000				1,430,000	1,335,000	−95,000
	Boulder City, Nev	690,000		−690,000				690,000		−690,000
California	Cachuma	72,985	77,000	+4,015				72,985	77,000	+4,015
	Central Valley	5,943,067	6,101,000	+157,933				[1] 5,943,067	6,101,000	+157,933
	Kings River	1,460	1,500	+40		13,500	+13,500	1,460	15,000	+13,540
	Solano	54,982	57,600	+2,618				54,982	57,600	+2,618
Colorado	Colorado-Big Thompson	709,410	773,000	+63,590	[2] 196,395	201,000	+4,605	905,805	974,000	+68,195
	Grand Valley		59,500	+59,500					59,500	+59,500
	San Luis Valley	7,785	8,000	+215				7,785	8,000	+215
Idaho-Oregon	Boise	353,675	365,000	+11,325	68,000	59,000	−9,000	421,675	424,000	+2,325
Idaho-Wyoming	Minidoka area projects	1,354,593	1,880,000	+525,407	132,000	130,000	−2,000	1,486,593	2,010,000	+523,407
Montana	Hungry Horse	508,946	666,000	+157,054				508,946	666,000	+157,054
	Milk River	217,979	18,351	−199,628	34,000	32,000	−2,000	251,979	50,351	−201,628
Nebraska-Wyoming	North Platte	132,345	187,500	+55,155	[3] 115,700	103,000	−12,700	248,045	290,500	+42,455
New Mexico	Carlsbad	4,671	4,700	+29	9,100	10,300	+1,200	13,771	15,000	+1,229
	Middle Rio Grande	350,326	450,000	+99,674	[4] 1,000,000	[4] 1,000,000		1,350,326	1,450,000	+99,674
New Mexico-Texas	Rio Grande	398,982	421,000	+22,018	1,100,000	1,035,000	−65,000	1,498,982	1,456,000	−42,982
Oklahoma	W. C. Austin	2,190	2,600	+410	6,750	9,200	+2,450	8,940	11,800	+2,860
Oregon	Rogue River Basin, Talent division.	59,904	86,000	+26,096				59,904	86,000	+26,096
Oregon-California	Klamath	39,405	38,400	−1,005	131,284	142,100	+10,816	170,689	180,500	+9,811
Texas	Falcon	4,866	5,000	+134				4,866	5,000	+134
Utah	Provo River	19,317	23,750	+4,433				19,317	23,750	+4,433
Washington	Columbia Basin	4,964,896	6,600,000	+1,635,104	30,000	40,000	+10,000	4,994,896	6,640,000	+1,645,104
	Yakima	149,862	226,000	+76,138	544,000	403,000	−141,000	693,862	629,000	−64,862
Wyoming	Kendrick	269,556	349,000	+79,444				269,556	349,000	+79,444
	Riverton	111,910	112,000	+90				111,910	112,000	+90
	Shoshone	160,177	123,600	−36,577	4,400	4,400		164,577	128,000	−36,577
Various	Missouri River Basin project	5,214,730	5,737,500	+522,770	[5] 13,887	11,000	−2,887	[6] 6,128,617	[6] 6,772,500	+643,883
	Soil and moisture	836,237	999,229	+162,992	[7] 11,975	[7] 9,150	−2,825	848,212	1,008,379	+160,167
	Halogeton	67,146	71,000	+3,854				67,146	71,000	+3,854
	Projects financed entirely with funds advanced.				123,800	127,600	+3,800	123,800	127,600	+3,800

	Yakima	149,862	226,000	+76,138	544,000	403,000	−141,000	693,862	629,000	−64,862
Wyoming	Kendrick	269,556	349,000	+79,444				269,556	349,000	+79,444
	Riverton	111,910	112,000	+90				111,910	112,000	+90
	Shoshone	160,177	123,600	−36,577	4,400	4,400		164,577	128,000	−36,577
Various	Missouri River Basin project	5,214,730	5,737,500	+522,770	[5] 13,887	11,000	−2,887	[6] 6,128,617	[6] 6,772,500	+643,883
	Soil and moisture	836,237	999,229	+162,992	[7] 11,975	[7] 9,150	−2,825	848,212	1,008,379	+160,167
	Halogeton	67,146	71,000	+3,854				67,146	71,000	+3,854
	Projects financed entirely with funds advanced.				123,800	127,600	+3,800	123,800	127,600	+3,800
Total		28,402,725	31,900,000	+3,497,275	3,987,246	3,783,290	−203,956	[8] 33,289,971	[8] 36,707,290	+3,417,319

[1] Excludes obligations from emergency funds.
[2] Includes $3,395 advanced by city of Denver.
[3] Includes $1,200 other than water users advances.
[4] Includes $150,000 for fiscal year 1960 and fiscal year 1961 advanced by State of New Mexico.
[5] Includes $3,887 other than water users advances.
[6] Includes $900,000 in fiscal year 1960 and $1,024,000 in fiscal year 1961 from Fort Peck continuing fund.
[7] Advanced by State of New Mexico.
[8] See footnotes 1 and 6.

Obligations, by functions, fiscal year 1960 and fiscal year 1961

State	Project	Irrigation		Power		Flood control		Other [1]		Total obligations	
		Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961
Alaska	Eklutna			$268,000	$279,500					$268,000	$279,500
Arizona-California	Yuma area projects	$465,985	$574,100	27,170	26,210			$46,700	$47,000	539,855	647,310
Arizona-California-Nevada	Parker-Davis			2,543,189	2,761,070					2,543,189	2,761,070
Arizona-Nevada	Boulder Canyon			1,430,000	1,335,000					1,430,000	1,335,000
California	Cachuma	72,985	77,000							72,985	77,000
	Central Valley	2,684,313	2,969,050	2,986,902	2,828,266			271,852	303,684	[2] 5,943,067	6,101,000
	Kings River	1,460	15,000							1,460	15,000
	Solano	54,982	57,600							54,982	57,600
Colorado	Colorado-Big Thompson	193,000	201,000	712,805	773,000					905,805	974,000
	Grand Valley				59,500						59,500
	San Luis Valley	4,714	4,800			$3,071	$3,200			7,785	8,000
Idaho-Oregon	Boise	61,500	53,300	349,175	358,100	11,000	12,600			421,675	424,000
Idaho-Wyoming	Minidoka area projects	667,593	749,820	812,500	1,253,680	6,500	6,500			1,486,593	2,010,000
Montana	Hungry Horse			484,746	641,800	24,200	24,200			508,946	666,000
	Milk River	245,979	44,351			2,650	2,650	3,350	3,350	251,979	50,351
Nebraska-Wyoming	North Platte	126,000	114,500	121,045	175,000	1,000	1,000			248,045	290,500
New Mexico	Carlsbad	9,100	10,300			4,671	4,700			13,771	15,000
	Middle Rio Grande	850,000	850,000			500,326	600,000			1,350,326	1,450,000
New Mexico-Texas	Rio Grande	1,100,000	1,035,000	383,432	403,500	15,550	17,500			1,498,982	1,456,000
Oklahoma	W. C. Austin	6,750	9,200			2,190	2,600			8,940	11,800
Oregon	Rogue River Basin, Talent division	23,604	28,700	36,300	57,300					59,904	86,000
Oregon-California	Klamath	170,689	180,500							170,689	180,500
Texas	Falcon			4,866	5,000					4,866	5,000
Utah	Provo River			19,317	23,750					19,317	23,750
Washington	Columbia Basin	2,045,000	3,137,000	2,913,396	3,495,000	7,000	8,000	29,500		4,994,896	6,640,000
	Yakima	544,000	443,000	142,362	157,000	5,000	5,000	2,500	24,000	693,862	629,000
Wyoming	Kendrick	4,000	4,000	265,556	345,000					269,556	349,000
	Riverton	46,910	50,000	65,000	62,000					111,910	112,000
	Shoshone	44,910	4,760	115,536	118,230	4,131	5,010			164,577	128,000
Various	Missouri River Basin project	224,642	228,240	5,691,423	6,323,439	186,818	196,733	25,734	24,088	6,128,617	6,772,500
	Projects financed entirely with funds advanced.	75,606	79,406					48,194	48,194	123,800	127,600
Subtotal		9,723,722	10,920,627	19,372,720	21,481,345	774,107	889,693	427,830	450,316	30,298,379	33,741,981

	Other operation and maintenance activities:										
	Boulder City, Nev.									600,000	
	Colorado River front work and levee system.									1,476,234	1,885,930
	Soil and moisture									848,212	1,008,379

	Other operation and maintenance activities:										
	Boulder City, Nev.									600,000	
	Colorado River front work and levee system.									1,476,234	1,885,930
	Soil and moisture									848,212	1,008,379
	Halogeton									67,146	71,000
Total										33,289,971	36,707,290

[1] These totals include the following:

State	Project	Municipal and industrial water		Fish and wildlife		Water control		Town of Coulee Dam		Total other	
		Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961	Fiscal year 1960	Fiscal year 1961
Arizona-California	Yuma area projects					$46,700	$47,000			$46,700	$47,000
California	Central Valley	$271,852	$303,684							271,852	303,684
Montana	Milk River	350	350			3,000	3,000			3,350	3,350
Washington	Columbia Basin							$29,500		29,500	
	Yakima			$2,500	$24,000					2,500	24,000
Various	Missouri River Basin project	11,310	9,393	14,424	14,695					25,734	24,088
	Projects financed entirely with funds advanced	48,194	48,194							48,194	48,194
Total		331,706	361,621	16,924	38,695	49,700	50,000	29,500		427,830	450,316

[2] Excludes obligations from emergency funds.

Operation and maintenance

State and project	Fiscal year 1960	Fiscal year 1961	Increase (+) or decrease (−)	Description and work proposed, fiscal year 1961
(1)	(2)	(3)	(4)	(5)
PROJECTS HAVING ONLY O. & M. ACTIVITY				
Eklutna project, Alaska				Description: The project is located in the south-central region of Alaska. The features of this single-purpose project consist of an earth-filled dam, with a reservoir with active storage capacity of 182,100 acre-feet; a 9-foot diameter, concrete-lined tunnel approximately 4.5 miles in length, and a steel penstock approximately 1,400 feet long serving a powerplant consisting of 2 units with a total nameplate rating of 30,000 kilowatts. The 2,000-kilowatt standby plant has been declared surplus and is being disposed of by the General Services Administration. All completed features are operated and maintained by the Bureau of Reclamation with appropriated funds.
Total obligations	$268,000	$279,500	+$11,500	
Appropriation available and required.	268,000	279,500	+11,500	
Total obligations	268,000	279,500	+11,500	
				Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued at about the same level as fiscal year 1960. The increase will provide for the purchase of replacements including a pickup, a dump truck, and an air compressor.
Yuma area projects, Arizona-California				Description: The facilities of the Yuma area projects are located in southwestern Arizona and southeastern California. These facilities include a powerplant with a nameplate rating of 1,600 kilowatts, 2 diversion dams, 4 pumping plants, transmission lines, substations, canals, laterals, and drainage systems. The Bureau of Reclamation operates and maintains the following: Gila headworks and desilting basin at the Imperial Dam, Gila gravity main canal, Yuma Mesa pumping plant, and drains with a combination of water users and appropriated funds; and the Yuma main canal, reservation division laterals and drains, a share of the Siphon Drop powerplant, and activities in connection with supervision and control as related to the Mexican Water Treaty with appropriated funds. The remaining facilities of the Yuma area projects are operated and maintained by the water users.
Total obligations	539,855	647,310	+107,455	
Appropriation available and required.	233,900	344,270	+110,370	
Non-Federal advance	305,955	303,040	−2,915	
				Work proposed, fiscal year 1961: Normal operation and maintenance will be continued.
Yuma Mesa division	162,835	239,660	+76,825	Increase due to inclusion of an estimate of $25,000 for investigation of methods to reduce seepage in the Gila gravity main canal and to provide for an improved outlet of drain line No. 3, including sump and pump, plus approximately $5,000 increase in operation costs on Gila gravity main canal due to requirement for ditchriders 24 hours a day, 7 days a week. This increase is largely offset by completion of nonrecurring maintenance in fiscal year 1960. Program includes $75,450 for replacement of 2 2-ton trucks, 3 pickup trucks, 2 tool bodies for pickups, and 1 heavy-duty truck crane with accessories and $5,200 for acquisition of an arc welder and an air compressor. The prior year program provided $6,600 for replacement of motor vehicles.
Wellton-Mohawk division	2,330	7,600	+5,270	The increase is for operation labor. Increased attention is necessary to prevent serious water elevation fluctuation in the Gila main and Wellton-Mohawk canals.
Reservation division	133,770	170,200	+36,430	Increase includes $37,000 for continued construction of drain line No. 10 and $10,000 for initiation of construction on main drain cutoff around Indian Hill. The prior year program included $16,500 for initiation of work on drain line No. 10.
Valley division	660	660		No change in normal continuing O. & M. program.
Power division	19,420	18,700	−720	Decrease due to completion of nonrecurring maintenance in prior year.
Yuma auxiliary project	19,770	400	−19,370	Decrease is due to the assumption of care, operation, and maintenance of Yuma auxiliary project facilities by Unit B, Irrigation & Drainage District on Jan. 1, 1960.
Imperial and Laguna Dams	44,385	64,100	+19,715	The program provides $4,000 for increased operation and maintenance cost at Imperial and Laguna Dams. An increase of $15,700 is included for completion of acquisition and assembly of a bulkhead for the sluice gates at Imperial Dam.

Valley division	660	660		No change in normal continuing O. & M. program.
Power division	19,420	18,700	−720	Decrease due to completion of nonrecurring maintenance in prior year.
Yuma auxiliary project	19,770	400	−19,370	Decrease is due to the assumption of care, operation, and maintenance of Yuma auxiliary project facilities by Unit B, Irrigation & Drainage District on Jan. 1, 1960.
Imperial and Laguna Dams	44,385	64,100	+19,715	The program provides $4,000 for increased operation and maintenance cost at Imperial and Laguna Dams. An increase of $15,700 is included for completion of acquisition and assembly of a bulkhead for the sluice gates at Imperial Dam.
Supervision and control, Mexican Water Treaty.	41,385	42,100	+715	The minor increase is for additional labor costs for taking of silt and water samples.
Consolidated projects office	115,300	103,890	−11,410	The reduction reflects takeover of facilities by Unit B Irrigation & Drainage District in fiscal year 1960. An appropriate reduction is reflected in water accounting and administrative and general expense.
Total obligations	539,855	647,310	+107,455	
Colorado River front work and levee system, Arizona-California-Nevada.				Description: This project extends along the 700-mile reach of the Colorado River from Lees Ferry, Ariz., to the Mexican boundary at Yuma, Ariz. Appropriated funds are used for constructing, improving, extending, operating, and maintaining the protection and drainage works and systems along the Colorado River; controlling the river and improving, modifying, straightening, and rectifying the channel and conducting investigations and studies
Total obligations	1,476,234	1,885,930	+409,696	
Appropriation available and required.	1,476,234	1,885,930	+409,696	
				Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued.
River surveys and investigations	89,000	89,000		No change in program from prior year.
Davis Dam to Topock division	1,008,000	362,930	−645,070	The decrease is primarily due to discontinuance of the channelization work in this area and moving the 20-inch dredge to the Cibola division.
Palo Verde division	2,000	2,000		No change in program from prior year.
Cibola Valley division		457,000	+457,000	This increase is due to the initiation of new channelization work in this division. This work will require $261,000 for operation of the 20-inch dredge, $95,000 for placement of riprap stone along bank lines and in stockpiles, $81,000 for construction of access roads, and $20,000 for the acquisition of right-of-way for channel.
Yuma area division	100,000	20,000	−80,000	This decrease reflects the omission of periodic extension of the original riprap placed on the levees during construction. Riprap extension is only scheduled at intervals of several years.
Administration of withdrawn lands		250,000	+250,000	This program will provide funds for initiation of work of administering withdrawn lands and includes $200,000 for cadastral surveys.
Headquarters division	277,234	705,000	+427,766	The increase in the program is primarily for the cost of dismantling, moving, and assembling of the 20-inch dredge, $135,000; establishment of the operating yard facility at Cibola, $230,000; acquisition of office, shop, and warehouse equipment, $30,000; and additional administrative and protective expense, $32,000.
Total obligations	1,476,234	1,885,930	+409,696	
Parker-Davis project, Arizona-California-Nevada.				Description: The principal features of this multipurpose project are located in western Arizona, southern Nevada, and southeastern California. Servicing of the Mexican Water Treaty at Davis Dam is accomplished by use of the reservoir in the regulation of the waters to be delivered to Mexico. Parker and Davis Dams assist Hoover Dam in river regulation and flood control. The 2 powerplants with an installed nameplate capacity of 345,000 kilowatts, transmission lines, substations, and dams are all operated and maintained by the Bureau of Reclamation with appropriated funds and with funds advanced by the metropolitan water district for its share of the cost of operating and maintaining Parker Dam powerplant and camp.
Total obligations	2,543,189	2,761,070	+217,881	
Appropriations available and required.	2,383,189	2,611,070	+227,881	
Non-Federal advance	160,000	150,000	−10,000	
				Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued.

Operation and maintenance—Continued

State and project	Fiscal year 1960	Fiscal year 1961	Increase (+) or decrease (−)	Description and work proposed, fiscal year 1961
(1)	(2)	(3)	(4)	(5)
PROJECTS HAVING ONLY O. & M. ACTIVITY—continued				
Parker-Davis project, Arizona-California-Nevada—Continued				
Parker Dam division	$244,826	$272,500	+$27,674	The program provides for wageboard increase and for nonrecurring maintenance covering the repair of generator cooling water coils. Replacements total $13,000 and include 2 ½-ton pickup trucks, special tools and devices which have become obsolete or wornout, and evaporative coolers. Minor additions and betterments include the improvement of instrumentation in the powerplant and will total $5,000.
Davis Dam division	355,474	426,000	+70,526	A total of $150,000 is included to continue the program of replacing substandard prefabricated houses. This total is an increase of $75,000 over the program for the current year. Replacement of 2 ½-ton pickup trucks, miscellaneous tools and equipment, water heaters, and evaporative coolers will require $15,000.
Transmission division	1,332,189	1,467,370	+135,181	The program includes $55,000 for wageboard increases and $13,000 for increased requirements for materials and supplies. Replacements include $30,000 for transportation equipment, $10,000 for mobile radio equipment, $13,000 for substation and transmission line equipment damaged in service, and $19,000 for tools, miscellaneous facilities, and work equipment. Replacement of a road grader at a cost of $18,000 is also provided for. Additions to meet changing system requirements include metering facilities, $9,900; protection and control equipment, $12,500; communication equipment, $20,000; substation and line improvements, $35,700; laboratory and test equipment, $14,000; and an autotransformer as a spare unit for the 2 synchronous condenser starting autotransformers at Coolidge and Mesa substations, $25,000. A total of $3,000 has been included to increase the spare parts inventory because of numerous recent installations of foreign-made power system facilities. Work similar to the above-mentioned items will be completed during the current year at a cost of $142,000.
System operations division	190,700	186,000	−4,700	Economy in operations accomplished through elimination of 1 position.
Headquarters division	420,000	409,200	−10,800	The program reflects economies accomplished through elimination of 3 positions. This is partially offset by the provision for replacement of obsolete wooden furniture with metal furniture.
Total obligations	2,543,189	2,761,070	+217,881	
Cachuma project, California				Description: This project is located on the southern coastal area of California. The Cachuma Reservoir on the Santa Ynez River stores 204,900 acre-feet. With the exception of the dam and reservoir which are operated by the Bureau, the other works are operated by the Cachuma operations board which represents the member units of the county water agency.
Total obligations	72,985	77,000	+4,015	
Appropriation available and required.	72,985	77,000	+4,015	
Total obligations	72,985	77,000	+4,015	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will continue. The increase covers additional general expense and reservoir operation offset by slight decrease in water marketing.
Kings River project, California				Description: This project is located in central California approximately 25 miles east of Fresno, Calif. While primarily a flood reservoir, the stored floodwaters are available for irrigation and other purposes. The dam and reservoir are operated and maintained by the Corps of Engineers; irrigation water billing and related services are provided by the Bureau of Reclamation.
Total obligations	1,460	15,000	+13,540	
Appropriation available and required.	1,460	1,500	+40	
Non-Federal advance		13,500	+13,500	Work proposed, fiscal year 1961: The program assumes that a repayment contract with the

Kings River project, California				
Total obligations	1,460	15,000	+13,540	Description: This project is located in central California approximately 25 miles east of Fresno, Calif. While primarily a flood reservoir, the stored floodwaters are available for irrigation and other purposes. The dam and reservoir are operated and maintained by the Corps of Engineers; irrigation water billing and related services are provided by the Bureau of Reclamation.
Appropriation available and required.	1,460	1,500	+40	
Non-Federal advance		13,500	+13,500	Work proposed, fiscal year 1961: The program assumes that a repayment contract with the member units of the Kings River Conservation District will be signed during fiscal year 1961. The increase is primarily due to additional requirements for contract administration following the execution of the repayment contract.
Total obligations	1,460	15,000	+13,540	
Solano project, California				
Total obligations	54,982	57,600	+2,618	Description: This project is located in central California. The principal features consist of Monticello Dam and Reservoir, a small concrete and earthfill diversion dam, and a canal with a small terminal reservoir. The water users operate and maintain the canal while the dam, reservoir, diversion dam, and headworks of the canal are operated and maintained by the Bureau with appropriated funds.
Appropriation available and required.	54,982	57,600	+2,618	
Total obligations	54,982	57,600	+2,618	Work proposed, fiscal year 1961: Normal operation and maintenance of the Bureau-operated features will continue. The increase is primarily for wage board increases.
Colorado-Big Thompson project, Colorado				
Total obligations	905,805	974,000	+68,195	Description: This project is located in north-central Colorado. Power generating facilities with a nameplate rating of 183,950 kilowatts are operated and maintained with appropriated funds. Storage works with a capacity of 994,803 acre-feet, pumping plants, and carriage works which are above the eastern slope terminal storage reservoirs are operated and maintained by the Bureau of Reclamation with appropriated funds and funds advanced by water users.
Appropriation available and required.	709,410	773,000	+63,590	
Non-Federal advance	196,395	201,000	+4,605	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued.
Green Mountain division	91,495	112,900	+21,405	The program provides $22,500 for replacements and additions which is an increase of $17,605 from fiscal year 1960. The increase will provide $15,000 for repair of roads in the Green Mountain powerplant and camp areas; $6,000 for conversion of 2 garages into bedrooms for 2 houses from a 2-bedroom to 3-bedroom status; and $1,500 for minor miscellaneous additions and replacements. An increase of $3,800 has been programed for powerplant maintenance supplies and material.
Granby division	201,350	191,925	−9,425	Program for fiscal year 1961 replacements and additions reflects a reduction of $10,900 from fiscal year 1960 and primarily results from completing the purchase of a runner for unit No. 2 of the Granby pumping plant. Replacements and additions include $3,200 for completion of rewiring houses in Shadow Mountain camp started in fiscal year 1960; $9,500 for installation of electric heaters in lieu of obsolete oil circulating heaters in camp houses; $4,000 for modification of Shadow Mountain camp electrical distribution system; $4,000 for installation of guardrail on Willow Creek Dam; $1,000 for miscellaneous replacements and additions, and $1,000 for modification of sump pump in Willow Creek pumping plant. The decrease is partially offset by $1,475 which is mostly for repair of riprapping on the Willow Creek feeder canal.
Estes Park division	143,997	149,850	+5,853	The increased program provides for wage board increases and additional powerplant operating supplies and materials. The program includes $2,000 for miscellaneous additions and replacements for such items as tools, communication equipment, and safety equipment.
Transmission division	6,650	6,650		No program change from prior year.
Flatiron division	167,500	176,510	+9,010	Program provides $8,500 for replacements and additions which is an increase of $7,000 over fiscal year 1960. Included is $5,000 for a centralized greasing system for the Big Thompson powerplant, and $3,500 for miscellaneous replacements and additions. An increase of $2,010 is included for increased cost of supplies and materials required for operation of powerplants and related facilities.

Operation and maintenance—Continued

State and project (1)	Fiscal year 1960 (2)	Fiscal year 1961 (3)	Increase (+) or decrease (−) (4)	Description and work proposed, fiscal year 1961 (5)
PROJECTS HAVING ONLY O. & M. ACTIVITY—continued				
Colorado-Big Thompson project, Colorado—continued				
Horsetooth-Carter Lake division	$44,200	$45,650	+$1,450	Increase primarily results from salary increases. The program includes $2,000 for miscellaneous additions and replacements, an increase of $300 for similar nonrecurring items in fiscal year 1960.
Project headquarters	250,613	290,515	+39,902	The program includes $7,000 for replacement of vehicles, $2,500 for replacement of a house trailer, and $500 for replacement of small tools and work equipment. This replacement program is $2,800 less than the prior year program for the same types of items. The increase results from normal salary increases, additional design and administrative services, right-of-way costs, and increased cost of supplies and materials for communication system and other projectwide activities.
Total obligations	905,805	974,000	+68,195	
Grand Valley project, Colorado				Description: The project is located in west-central Colorado and includes diversion and distribution facilities and a 3,000-kilowatt powerplant. All completed irrigation works are operated by the Grand Valley Water Users' Association and the Orchard Mesa Irrigation District. The Grand Valley powerplant construction was financed with funds advanced by the Public Service Co. of Colorado and is being operated by them under contract which expires Dec. 31, 1960. Subsequent to expiration of this contract, the powerplant will be operated by the Bureau of Reclamation.
Total obligations		59,500	+59,500	
Appropriation available and required		59,500	+59,500	
Total obligations		59,500	+59,500	Work proposed, fiscal year 1961: The program provides for operation and maintenance of Grand Valley powerplant and for accounting and collecting, power marketing, administrative and general expense after Dec. 31, 1960. A nonrecurring item of $25,000 for rehabilitation of penstocks is also included.
San Luis Valley project, Colorado				Description: This project is located in Colorado. Platoro unit facilities consist of an earth, rock-filled dam and a reservoir with a storage capacity of 60,000 acre-feet to provide supplemental irrigation water supply for 81,000 acres of fertile land. The Bureau of Reclamation is operating and maintaining Platoro Dam and Reservoir with appropriated funds.
Total obligations	7,785	8,000	+215	
Appropriation available and required	7,785	8,000	+215	
Total obligations	7,785	8,000	+215	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued at about the same level as fiscal year 1960.
Boise project, Idaho-Oregon				Description: This project is located principally in southwestern Idaho. Project facilities provide a full water supply to 224,761 acres of land, a supplemental supply to 136,115 acres, and power generation. The Bureau operates and maintains 4 storage dams, 2 diversion dams, 3 powerplants (with nameplate rating totaling 36,500 kilowatts), 54 miles of transmission lines, 7 substations, and related facilities with appropriated funds and funds advanced by water users.
Total obligations	421,675	424,000	+2,325	
Appropriation available and required	353,675	365,000	+11,325	
Non-Federal advances	68,000	59,000	−9,000	

Boise project, Idaho-Oregon				
Total obligations	421,675	424,000	+2,325	Description: This project is located principally in southwestern Idaho. Project facilities provide a full water supply to 224,761 acres of land, a supplemental supply to 136,115 acres, and power generation. The Bureau operates and maintains 4 storage dams, 2 diversion dams, 3 powerplants (with nameplate rating totaling 36,500 kilowatts), 54 miles of transmission lines, 7 substations, and related facilities with appropriated funds and funds advanced by water users.
Appropriation available and required.	353,675	365,000	+11,325	
Non-Federal advances	68,000	59,000	−9,000	
Total obligations	421,675	424,000	+2,325	Work proposed, fiscal year 1961: The minor increase is due primarily to additional maintenance of aging equipment. Nonrecurring items to be completed in the prior year include replacement of 2 pickup trucks, miscellaneous equipment and repairs, and resurfacing road across Arrowrock Dam. This is offset in fiscal year 1961 by $5,000 for repairs to retaining wall, $3,000 for 2 100-kilovolt-ampere transformers, and $3,000 for replacement of 2 pickup trucks.
Minidoka area projects, Idaho-Wyoming				Description: The Minidoka area projects extend from Jackson Lake Reservoir on the headwaters of the Snake River in northwestern Wyoming downstream approximately 300 miles to the town of Gooding in southern Idaho. The power facilities which include a 13,400-kilowatt plant at Minidoka Dam and a 114,000-kilowatt plant at Palisades (nameplate ratings) are operated and maintained by the Bureau of Reclamation with appropriated funds. The 2 powerplants are integrated with each other and with the Boise project powerplants through wheeling contracts with the Utah Power & Light Co. and the Idaho Power Co. All storage facilities serving the project areas, together with the river pumping plants, deep wells, and related irrigation facilities of the North Side pumping division and the Michaud Flats project, are operated and maintained by the Bureau of Reclamation from a combination of appropriated funds and water users' advances. All other facilities are operated and maintained by water users' organizations.
Total obligations	1,486,593	2,010,000	+523,407	
Appropriation available and required.	1,354,593	1,880,000	+525,407	
Non-Federal advances	132,000	130,000	−2,000	
Minidoka storage division	116,790	128,730	+11,940	Work proposed, fiscal year 1961: Normal operation and maintenance will continue. Increase is due primarily to additional right-of-way purchases at American Falls Reservoir of $10,000. Program provides for additional work to be done on the outlet works of the several reservoirs, partially offset by reduction in vehicle replacements in fiscal year 1961.
Minidoka North Side pumping division	441,292	490,730	+49,438	Program provides for an increase in maintenance on deep-well pumps and motors, and for additional maintenance of laterals and drains for weed control and silt removal.
Minidoka power division	225,750	520,750	+295,000	Rapidly expanding load of the project power system requires additional substation capacity at Burley and Rupert, Idaho, which is estimated to cost $193,000 in fiscal year 1961. Other requirements of the 40-year-old power system include $25,500 for an oil circuit breaker for the Hayburn substation and $13,000 for other additions. Replacements include $14,000 for overage motor vehicles and $24,000 for replacement of obsolete and wornout power system equipment. Provision is also made for increased costs of operations under the integration contract with Idaho Power Co. for wheeling costs and operating expenses.
Palisades project	525,761	640,790	+115,029	Increase includes $49,100 for wheeling power over Idaho Power Co. and Utah Power Co. transmission lines. Dispatching costs under the integration contract with Idaho Power Co. are increased $15,300. An amount of $20,000 for minor post construction additions has been included. An increase in general expense amounting to $23,140 has also been provided for.
Michaud Flats project	57,000	59,000	+2,000	This is the 2d full year of operation for this project. A small increase is provided for maintenance of deep-well pumps and motors and the pipe lateral system.
Project headquarters	120,000	170,000	+50,000	Increase is due to redistribution of project headquarters expense between operation and maintenance and construction activities warranted by the reduction in the construction programs, and increased O. & M. activity.
Total obligations	1,486,593	2,010,000	+523,407	

Operation and maintenance—Continued

State and project	Fiscal year 1960	Fiscal year 1961	Increase (+) or decrease (−)	Description and work proposed, fiscal year 1961
(1)	(2)	(3)	(4)	(5)
PROJECTS HAVING ONLY O. & M. ACTIVITY—continued				
Hungry Horse project, Montana				Description: This project is located in northwestern Montana. Power-generating facilities with a nameplate rating of 285,000 kilowatts, a concrete dam and 3,468,000-acre-foot reservoir, and a switchyard are operated and maintained by the Bureau of Reclamation with appropriated funds.
Total obligations	$508,946	$666,000	+$157,054	
Appropriations available and required	508,946	666,000	+157,054	
Total obligations	508,946	666,000	+157,054	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued. The fiscal year 1961 program also provides for nonrecurring items of $63,920 for a log boom replacement, $20,000 for conversion of camp buildings and residences to electric heating, $18,000 for a semiautomatic, centralized high-pressure lubrication system for powerplant turbines, $5,400 for protective fencing and curb stops, $4,080 for additional noise suppression work in the turbine gallery, and $7,000 for other miscellaneous replacements and improvements. In addition, the program includes increases of $14,804 for maintenance of turbines and generators and $31,400 for administrative expenses, including salaries, supplies, and charges from associated offices. Total of increases is $164,604, offset by $7,550 for work completed in fiscal year 1960.
Milk River project, Montana				Description: This project is located in north-central Montana. The storage system, or reserved works, is operated and maintained by the Bureau of Reclamation with funds advanced by the water users except for the small portion allocated to flood control, municipal water, and administration of the international treaty, which is financed from appropriated funds. The balance of the irrigation facilities is operated and maintained by the water users.
Total obligations	251,979	50,351	−201,628	
Appropriation available and required.	217,979	18,351	−199,628	
Non-Federal advances	34,000	32,000	−2,000	
Storage and irrigation division	248,579	46,951	−201,628	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued. The decrease is principally the result of a 3-year nonrecurring program for modification to outlet works and emergency overflow provisions for Sherburne Lake Dam, which will be completed early in fiscal year 1961. This program was initiated in fiscal year 1959.
Project headquarters	3,400	3,400		No change from prior year.
Total obligations	251,979	50,351	−201,628	
North Platte project, Nebraska-Wyoming				Description: This project is located in western Nebraska and eastern Wyoming. The storage works with a capacity of 1,060,800 acre-feet, Whalen diversion dam, and power facilities with a nameplate rating of 4,800 kilowatts which were integrated with Missouri River Basin project on June 30, 1959, and drainage diversion works, are operated and maintained with appropriated funds. 4 irrigation districts operate and maintain the canal, lateral and drainage system.
Total obligations	248,045	290,500	+42,455	
Appropriation available and required.	132,345	187,500	+55,155	
Non-Federal advance	115,700	103,000	−12,700	
Irrigation division	119,000	108,500	−10,500	Work proposed, fiscal year 1961: Normal operation and maintenance will be continued. The decrease in the normal program is due to the Bureau's agreement to pay — of the cost of O. & M. of Pathfinder after completion of Fremont Canyon powerplant. This decrease is partially offset by $1,500 wage increases.
Power division	97,545	150,500	+52,955	The program of nonrecurring items for fiscal year 1961 provides $4,000 for vehicle replacements, $49,000 for repair of Guernsey Stoney and spillway gates, $500 for small equipment, and $7,500 for a station service transformer for Guernsey switchyard. This is an increase of $51,500 over the prior year nonrecurring program. In addition, $1,455 is provided for wage increases.

Irrigation division	119,000	108,500	−10,500	Work proposed, fiscal year 1961: Normal operation and maintenance will be continued. The decrease in the normal program is due to the Bureau's agreement to pay — of the cost of O. & M. of Pathfinder after completion of Fremont Canyon powerplant. This decrease is partially offset by $1,500 wage increases.
Power division	97,545	150,500	+52,955	The program of nonrecurring items for fiscal year 1961 provides $4,000 for vehicle replacements, $49,000 for repair of Guernsey Stoney and spillway gates, $500 for small equipment, and $7,500 for a station service transformer for Guernsey switchyard. This is an increase of $51,500 over the prior year nonrecurring program. In addition, $1,455 is provided for wage increases.
Project headquarters	31,500	31,500		No change from prior year.
Total obligations	248,045	290,500	+42,455	
Carlsbad project, New Mexico				Description: The project is located in the Pecos River Valley in southeastern New Mexico. All features, except Alamogordo Dam and Reservoir, are operated and maintained by the water users. Alamogordo Dam and Reservoir with a capacity of 122,100 acre-feet are operated and maintained by the Bureau with appropriated funds and funds advanced by the water users. The appropriated funds cover the flood control function.
Total obligations	13,771	15,000	+1,229	Work proposed, fiscal year 1961: No significant change from prior year operation and maintenance program. The program includes $1,500 for the replacement of 1 pickup truck.
Appropriation available and required.	4,671	4,700	+29	
Non-Federal advances	9,100	10,300	+1,200	
Total obligations	13,771	15,000	+1,229	
Rio Grande project, New Mexico-Texas				Description: This multipurpose project is located in central and south-central New Mexico, and El Paso County, Tex. The powerplant with a nameplate rating of 24,300 kilowatts and the power transmission system are operated and maintained by the Bureau of Reclamation with appropriated funds. The irrigation features are operated and maintained by the Bureau with funds advanced by the water users. The water user organizations have been urged periodically to accept the irrigation facilities for operation and maintenance; however, because of the compact with Mexico and interstate aspects of the project, they prefer to have the Bureau continue these operations, using funds advanced by them.
Total obligations	1,498,982	1,456,000	−42,982	Work proposed, fiscal year 1961: Normal operation and maintenance will be continued.
Appropriation available and required.	398,982	421,000	+22,018	
Non-Federal advances	1,100,000	1,035,000	−65,000	
Elephant Butte power and storage division.	351,982	374,000	+22,018	The program provides $13,500 for replacement of a 1948 model line truck; $7,500 for replacement of motor vehicles; $6,000 for replacement of motors, gates, pumps, valves, and other such miscellaneous operating equipment; and $1,000 for the addition of a small lathe. The increase due to these nonrecurring items is partially offset by the completion of the purchase of a number of equipment replacements and additions in the current year. Other changes in the O. & M. program result from a number of minor increases for maintenance on the aging power and multipurpose facilities, wage increases for wage board employees and increased cost of materials.
Las Cruces Branch (irrigation)	609,000	579,000	−30,000	The program provides $24,500 for replacement or improvement of wornout structures on canals, laterals, and drains; $13,500 for replacement of automotive equipment; $5,000 for replacement of small tools; and $20,000 for major equipment repairs. A similar replacement program of the same value will be accomplished during the prior year. The decrease in the O. & M. program is due to the drain cleaning program being essentially completed in the prior year and a reduced amount for the weed control program
Ysleta Branch (irrigation)	376,000	341,000	−35,000	The program provides $5,000 for replacement of small tools and $7,000 for major equipment repairs. The decrease in the overall program results from financing the replacement or improvement of wornout waterway structures and the replacement of equipment under the rehabilitation and betterment program.
Project headquarters	162,000	162,000		No change from prior year program.
Total obligations	1,498,982	1,456,000	−42,982	

Operation and maintenance—Continued

State and project	Fiscal year 1960	Fiscal year 1961	Increase (+) or decrease (−)	Description and work proposed, fiscal year 1961
(1)	(2)	(3)	(4)	(5)
PROJECTS HAVING ONLY O. & M. ACTIVITY—continued				
W. C. Austin project, Oklahoma				Description: This project is located in southwestern Oklahoma. All features, except the dam and reservoir, are operated and maintained by the water users. The dam and reservoir with a capacity of 164,300 acre-feet are operated and maintained by the Bureau with appropriated funds, funds advanced by the water users, and materials and labor contributed by the water users. The appropriated funds cover the flood control function.
Total obligations	$8,940	$11,800	+$2,860	
Appropriation available and required.	2,190	2,600	+410	
Non-Federal advances	6,750	9,200	+2,450	
Total obligations	8,904	11,800	+2,860	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued. Approximately $2,690 from funds advanced by the water users will be used for the purchase of about 70 acres of land at the upper end of the reservoir to prevent possible future claims.
Falcon project, Texas				Description: This project consists of marketing, by the Bureau, of the United States share of power generated at Falcon Dam, an international dam on the Rio Grande in Zapata County, Tex., under jurisdiction of the International Boundary and Water Commission. Before the beginning of each power year (November) the estimates of power and energy available for marketing are prepared, and the Bureau reviews and coordinates with the International Boundary and Water Commission these water and power studies. This work is performed by the Bureau of Reclamation with appropriated funds.
Total obligations	4,866	5,000	+134	
Appropriation available and required.	4,866	5,000	+134	
Total obligations	4,866	5,000	+134	Work proposed, fiscal year 1961: The normal activities in connection with the project will be continued.
Yakima project, Washington				Description: This project is located in south-central Washington. Power facilities with a nameplate rating of 23,250 kilowatts (Chandler and Roza powerplants), are operated and maintained with appropriated funds. Storage works, consisting of 6 reservoirs, with a capacity of 1,070,700 acre-feet, diversion dams, pumping plants, carriage and lateral systems are operated and maintained by the Bureau of Reclamation with funds advanced by water users.
Total obligations	693,862	629,000	−64,862	
Appropriation available and required.	149,862	226,000	+76,138	
Non-Federal advances	544,000	403,000	−141,000	
Storage division	93,800	90,000	−3,800	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued with the exception of the Roza irrigation field division, which is scheduled to be transferred to the water users on Jan. 1, 1961. The fiscal year 1961 program provides nonrecurring items of $1,500 for replacement of a utility sedan and $1,250 for the replacement of office and work tools, offset by a decrease of $4,000 due to completion of 2 electric line installations in fiscal year 1960.
Roza irrigation field division	363,993	286,663	−77,330	The decrease reflects the reduced requirement due to the transfer of this division to the water users on Jan. 1, 1961. Nonrecurring items include $1,500 for replacement of a sedan and $15,000 for replacement of a crawler tractor, offset by completion of purchases in fiscal year 1960 for other equipment. Also includes a nonrecurring item of $40,000 required to finance terminal leave payments to employees at time of transfer to water users, in accordance with provisions of repayment contract.
Power division	147,469	173,337	+25,868	The increase results principally from a nonrecurring item of $21,500 for the replacement of deteriorated mesh on fish screens at Roza diversion dam, and a minor increase in maintenance costs as equipment becomes older.
Project headquarters	88,600	79,000	−9,600	Decrease due to reduction in force, attributable to reduced workload upon transfer of Roza irrigation field division to the water users. Includes nonrecurring item of $500 for the replacement of office equipment offset by a like amount in fiscal year 1960.

required to finance terminal leave payments to employees at time of transfer to water users, in accordance with provisions of repayment contract.

Power division	147,469	173,337	+25,868	The increase results principally from a nonrecurring item of $21,500 for the replacement of deteriorated mesh on fish screens at Roza diversion dam, and a minor increase in maintenance costs as equipment becomes older.
Project headquarters	88,600	79,000	−9,600	Decrease due to reduction in force, attributable to reduced workload upon transfer of Roza irrigation field division to the water users. Includes nonrecurring item of $500 for the replacement of office equipment offset by a like amount in fiscal year 1960.
Total obligations	693,862	629,000	−64,862	
Kendrick project, Wyoming				Description: This multipurpose project is located in central Wyoming. Power features with a nameplate rating of 68,400 kilowatts are operated and maintained by the Bureau of Reclamation with appropriated funds. Operation and maintenance of the irrigation system, except reserved works, was turned over to the irrigation district Jan. 1, 1958.
Total obligations	269,556	349,000	+79,444	
Appropriation available and required.	269,556	349,000	+79,444	Work proposed, fiscal year 1961: Normal operation and maintenance of the project will be continued.
Power division	223,656	299,850	+76,194	The increase in the program is due to $4,000 for replacement of vehicles; $5,000 for repair of Alcova spillway; $5,000 for repairing and painting Seminoe spillway gates; $1,000 for small equipment; $10,000 for oiling and improving roads; $42,000 for construction of 2 houses at Seminoe Camp; $3,500 for a voltage regulator; $3,500 for bulkhead gate at Casper headworks; and $3,000 for materials required for major overhaul of plant for a voltage regulator; and wage increases of $14,194.
Project headquarters	45,900	49,150	+3,250	The increase in program is due primarily to wage board increases and for maintenance of communication equipment being installed in fiscal year 1960.
Total obligations	269,556	349,000	+79,444	
Riverton project, Wyoming				Description: This multipurpose project is located in central Wyoming. Power facilities of the project include Pilot Butte powerplant with two 800-kilowatt generating units. All transmission facilities are leased to Missouri River Basin transmission division with operation and maintenance programed thereunder. Irrigation facilities of the 1st and 2d divisions are operated by the Midvale Irrigation District. The Midvale Irrigation District also operates and maintains the joint works, including Bull Lake and Pilot Butte Reservoir, diversion dam and Wyoming canal (1st and 2d divisions). The United States operates the 3d division and Pilot Butte powerplant and Wyoming canal with appropriated funds.
Total obligations	111,910	112,000	+90	
Appropriation available and required.	111,910	112,000	+90	Work proposed, fiscal year 1961: Normal operation and maintenance will continue.
Irrigation division	42,710	45,800	+3,090	The program provides for equipment acquisitions at about the same level as fiscal year 1960, with replacement of 1 rubber-tired tractor and 1 pickup at a total of $4,200. Increase is primarily for additional administrative requirements.
Power division	55,900	53,000	−2,900	The program provides $3,000 for general improvements to the powerplant and $1,000 for miscellaneous equipment. This is a decrease of $2,900 from the prior year addition and replacement program.
Project headquarters	13,300	13,200	−100	No significant change from prior year.
Total obligations	111,910	112,000	+90	

Operation and maintenance—Continued

State and project	Fiscal year 1960	Fiscal year 1961	Increase (+) or decrease (−)	Description and work proposed, fiscal year 1961
(1)	(2)	(3)	(4)	(5)
PROJECTS HAVING ONLY O. & M. ACTIVITY—continued				
Shoshone project, Wyoming				Description: This project is located in northwestern Wyoming. The facilities of the Willwood Garland, Frannie, and Heart Mountain divisions are operated and maintained by the water users. The dam and reservoir and 2 powerplants with a nameplate rating of 10,600-kilowatts are operated and maintenained by the Bureau with appropriated funds except for advances by water users for their share in the operation and maintenance of the dam and reservoir. All transmission facilities are leased to Missouri River Basin project transmission division with operation and maintenance programed thereunder.
Total obligations	$164,577	$128,000	−$36,577	
Appropriation available and required.	160,177	123,600	−36,577	
Non-Federal advances	4,400	4,400		
				Work proposed, fiscal year 1961: Normal operation and maintenance will continue.
Storage division	12,500	12,600	+100	No significant change from prior year.
Irrigation division	36,177		−36,177	The decrease is due to the transfer of Heart Mountain division facilities to water users on Jan. 1, 1960.
Power division	91,900	95,400	+3,500	The program provides $2,500 for replacing a truck and $1,000 for miscellaneous equipment. This is an increase of $3,000 over the prior year additions and replacement program.
Project headquarters	24,000	20,000	−4,000	The decrease in program is due to the transfer of Heart Mountain irrigation division facilities to the water users on Jan. 1, 1960.
Total obligations	164,577	128,000	−36,577	
Soil and moisture conservation program				Description: The soil and moisture conservation operations are authorized under the provisions of the Soil and Moisture Conservation Act of Apr. 27, 1935, and Reorganization Plan No. IV, dated Apr. 11, 1940. The Bureau of Reclamation is conducting a planned conservation program designed essentially to meet the threat of accelerated erosion on lands under its jurisdiction, protect reclamation-built structures from deterioration or loss of efficiency resulting from erosion or its byproducts, and otherwise contribute to the reduction of soil and moisture losses from the areas involved.
Total obligations	848,212	1,008,379	+160,167	
Appropriation available and required.	836,237	999,229	+162,992	
Non-Federal advance	11,975	9,150	−2,825	
				Work proposed, fiscal year 1961: During fiscal year 1961 the soil and moisture conservation programs will be conducted in critical areas of 50 established reclamation projects and 17 divisions or units of the Missouri River Basin project at various locations throughout the 17 Western States. This work is under the guidance of the several regional offices having field jurisdiction over the areas involved. However, the technical services and facilities of other agencies engaged in similar activities are utilized in order to maintain the maximum degree of program efficiency at the lowest practical cost.
Region 1	98,825	140,000	+41,175	This net increase of $41,175 is required primarily for adding $27,200 to expand erosion control under the watershed improvement and protection program, Boise project, and shoreline and sand dune erosion control for the Minidoka project, and $13,975 for control of detrimental vegetation and stabilization of wasteway channels and other areas on the Columbia Basin and Minidoka projects.
Region 2	145,727	160,850	+15,123	This net increase of $15,123 is primarily for the additional work on the revegetation and erosion control program at the Keswick Reservoir, erosion control on the Madera canal and equalizing reservoir, and land-use management on the Klamath project.
Region 3	110,937	115,000	+4,063	Increase in the program is to provide for water-use economy and water-quality study on Salt River project; study of canal losses on Gila project; and study for reduction of flood and sediment damage below Davis Dam. Offsetting these increases is the decrease due

Region 2	148,727	160,850	+15,123	This net increase of $15,123 is primarily for the additional work on the revegetation and erosion control program at the Keswick Reservoir, erosion control on the Madera canal and equalizing reservoir, and land-use management on the Klamath project.
Region 3	110,937	115,000	+4,063	Increase in the program is to provide for water-use economy and water-quality study on Salt River project; study of canal losses on Gila project; and study for reduction of flood and sediment damage below Davis Dam. Offsetting these increases is the decrease due to the completion of the Sheep Creek barrier structure on the Marble Canyon project in fiscal year 1960.
Region 4	56,074	72,400	+16,326	The increase of $16,326 is due primarily to construction of channel drops in Deer Creek of the Provo River project for reducing erosion; initiation of a program to control channel erosion in Cottonwood, Wash., of the Moon Lake project; additional studies to determine methods for improving vegetative cover in desert shrub areas; and an increase in the seeding program.
Region 5	104,036	109,150	+5,114	This net increase of $5,114 results from the initiation of erosion control programs on the Carlsbad project and Fort Cobb Reservoir of the Washita Basin project, acceleration of the erosion control programs on the Tucumcari and middle Rio Grande projects, and increased investigations and surveys and seeding programs on the middle Rio Grande project, partially offset by a decrease in the Rio Grande project salt cedar control program, and the completion of scheduled work on the Fort Sumner and W. C. Austin projects.
Region 6	208,638	213,229	+4,591	The increase of $4,591 is primarily due to additional studies of the electroreclamation program to further analyze, document, and demonstrate the operation of the process; and construction of small drop structures in the Belle Fourche area for erosion control. These increases are partially offset by completion in fiscal year 1960 of the Shadehill area revegetation work and completion of construction on control structures in the Shoshone area.
Region 7	116,775	170,000	+53,225	The increase is primarily due to increased reservoir area conservation work on Guernsey, Glendo, Enders, Harry Strunk Lake, Swanson Lake, Red Willow, Lovewell, Kirwin, Webster, and Sherman Reservoirs and increased flood and erosion control work on drains of the North Platte project.
Washington office	4,281	7,750	+3,469	The increase is for additional administrative expenses of the Washington office.
Denver office	2,919	20,000	+17,081	The increase is for soil and moisture conservation investigations and studies such as electrical logging for water losses, electroreclamation of soils, sedimentation, water salvage, and control of undesirable vegetation.
Total obligations	848,212	1,008,379	+160,167	

Operation and maintenance—Continued

State and project	Fiscal year 1960	Fiscal year 1961	Increase (+) or decrease (−)	Description and work proposed, fiscal year 1961
(1)	(2)	(3)	(4)	(5)
PROJECTS HAVING ONLY O. & M. ACTIVITY—continued				
Halogeton control				Description: The known Hallogeton infestations on Bureau of Reclamation lands are located principally in Wyoming, Montana, Idaho, Nevada, Colorado, and Utah. The Halogeton control operations are authorized under the provisions of Halogeton Glomeratus Control Act of July 14, 1952, Public Law 529, 82d Cong., ch. 721, 2d sess. The act authorized the Secretary of the Interior to conduct surveys to detect the presence of Halogeton *glomeratus*, to determine the measures necessary to control, suppress, and eradicate this weed, and to plan, organize, direct, and effect such measures as deemed necessary to carry out the purpose of this act. The Halogeton control operations are financed from appropriated funds.
Total obligations	$67,146	$71,000	+$3,854	
Appropriation available and required	67,146	71,000	+3,854	
Total obligations	67,146	71,000	+3,854	Work proposed, fiscal year 1961: Work will continue on surveys necessary to locate infestations on lands under the jurisdiction of the Bureau, to determine the most effective methods of control, and to conduct spraying and seeding programs to control known infestations in cooperation with other agencies. The increase consists of $2,000 to cover additional studies to be undertaken at the Denver reservoir site in determining method of improving vegetative cover in desert shrub areas. Other increases will cover additional surveys on control measures in the Big Horn and Wind River areas.
PROJECTS HAVING BOTH C. & R. AND O. & M. ACTIVITIES				
Boulder Canyon project, Arizona and Nevada				See p. 218 for description and work proposed.
Total obligations	1,430,000	1,335,000	−95,000	
Appropriation available and required.	1,430,000	1,335,000	−95,000	
Central Valley project, California				See p.225 for description and work proposed.
Total obligations	6,188,067	6,101,000	−87,067	
Appropriation available and required.	5,943,067	6,101,000	+157,933	
Allotment from emergency fund	245,000		−245,000	
Middle Rio Grande project, New Mexico				See p. 263 for description and work proposed.
Total obligations	1,350,326	1,450,000	+99,674	
Appropriation available and required.	350,326	450,000	+99,674	
Non-Federal advance	1,000,000	1,000,000		

Middle Rio Grande project, New Mexico				See p. 263 for description and work proposed.
Total obligations	1,350,326	1,450,000	+99,674	
Appropriation available and required.	350,326	450,000	+99,674	
Non-Federal advance	1,000,000	1,000,000		
Rogue River Basin project, Oregon, Talent division.				See p. 276 for description and work proposed.
Total obligations	59,904	86,000	+26,096	
Appropriation available and required.	59,904	86,000	+26,096	
Klamath project, Oregon and California				See p. 284 for description and work proposed.
Total obligations	170,689	180,500	+9,811	
Appropriation available and required.	39,405	38,400	−1,005	
Non-Federal advances	131,284	142,100	+10,816	
Provo River project, Utah				See p. 295 for description and work proposed.
Total obligations	19,317	23,750	+4,433	
Appropriation available and required.	19,317	23,750	+4,433	
Columbia Basin project, Washington				See p. 312 for description and work proposed.
Total obligations	4,994,896	6,640,000	+1,645,104	
Appropriation available and required.	4,964,896	6,600,000	+1,635,104	
Non-Federal advances	30,000	40,000	+10,000	
Missouri River Basin project				See p. 418 for description and work proposed.
Total obligations	6,128,617	6,772,500	+643,883	
Appropriation available and required.	5,214,730	5,737,500	+522,770	
Non-Federal advances	13,887	11,000	−2,887	
Fort Peck continuing fund	900,000	1,024,000	+124,000	

PROJECT STATISTICS

Eklutna project, Alaska

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Power system:				
Annual sales	Kilowatt-hour	159,437,228	153,000,000	153,000,000
Revenues from sale of electrical energy	Dollar	1,633,407	1,575,600	1,575,600
Powerplants	Number	2	2	2
Plant capacity (nameplate-capacity)	Kilowatt	32,000	32,000	32,000
Transmission lines	Mile	[1] 68	[2] 71	[2] 71
Substations	Number	3	3	3
Substation capacity	Kilovolt-ampere	40,000	40,000	40,000

[1] 27-33 kvs; 41-115 kvs.
[2] 27-33 kvs; 44-115 kvs.

Yuma area projects, Arizona-California

Gila project, Arizona

	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land, full	Acre [1]	2,088	2,088	2,088
Irrigated area	do.[2]	2,088	2,000	2,000
Gross crop value	Dollar [2]	278,100	260,000	260,000
Average gross crop value per acre	do.[2]	133	130	130
Diversion dams	Number	1	1	1
Pumping plants	do	1	1	1
Canals	Mile	21	21	21
Drains	do	10	10	10
Operating roads	do	21	21	21
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land, full	Acre [3]	101,399	101,399	101,399
Irrigated areas	do.[2]	65,634	77,000	89,000
Gross crop value	Dollar [2]	10,704,325	11,935,000	13,795,000
Average gross crop value per acre	do.[2]	163	155	155
Pumping plants	Number	3	3	3
Canals	Mile	121	121	121
Laterals	do	246	246	246
Drains	do	6	6	6
Operating roads	do	202	202	202

[1] Acreage served under Warren Act contracts.
[2] Figures on calendar year basis.
[3] Includes 75,000 W-M, 6429 North Gila and 19,970 Yuma Mesa.

Yuma area projects, Arizona-California—Continued

Reservation Division

	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land, full.	Acre	14,620	14,620	14,620
Irrigated area	do.[1]	9,102	10,000	10,000
Gross crop value	Dollar [1]	1,540,930	1,700,000	1,700,000
Average gross crop value per acre.	do [1]	169	170	170
Diversion dams [2]	Number	1	1	1
Canals	Mile	3.4	3.4	3.4
Laterals	do	73	73	73
Drains [3]	do	27	27	27
Telephone lines	do	3	3	3
Operating roads	do	125	125	125
Power system:				
Annual sales	Kilowatt-hour	10,365,987	11,000,000	11,000,000
Total power revenues	Dollar	30,290	42,000	42,000
Powerplants	Number	1	1	1
Plant capacity	Kilowatt	1,600	1,600	1,600
Patrol roads	Mile	3	3	3
Transmission lines [4] circuit and structural.	do	27.2	27.2	27.2
Substations	Number	2	2	2
Substation capacity	Kilovolt-ampere	2,050	2,050	2,050

[1] Figures on calendar year basis.
[2] Laguna Dam, operated as an appurtenant structure to Imperial Dam.
[3] Includes 10 miles of old Yuma main canal now acting as drain.
[4] Operated and maintained by Parker-Davis project.

Valley Division

Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land, full.	Acre	51,936	51,936	51,936
Irrigated area	do.[1]	45,250	45,400	45,400
Gross crop value	Dollar [1]	19,636,826	19,522,000	19,522,000
Average gross crop value per acre.	do.[1]	434	430	430
Canals	Mile	49	49	49
Laterals	do	145	145	145
Drains	do	100	100	100
Operating roads	do	140	140	140

[1] Figures on calendar year basis.

Yuma auxiliary project, Arizona

Facilities operated by bureau: Irrigation system:				
Irrigable acreage for service: Irrigation service land, full.	Acre	3,406	[1] 3,406	
Irrigated area	do.[2]	2,892	2,900	
Gross crop value	Dollar [2]	1,253,265	1,247,000	
Average gross crop value per acre	do.[2]	433	430	
Canals	Mile	3.5	3.5	
Laterals	do	14.5	14.5	
Operating roads	do	3.5	3.5	
Facilities operated by water users: Irrigation system:				
Irrigable acreage for service: Irrigation service land, full.	Acre			[1] 3,406
Irrigated area	do.[2]			3,100
Gross crop value	Dollar [2]			1,333,000
Average gross crop value per acre	do.[2]			430
Canals	Mile			3.5
Laterals	do			14.5
Operating roads	do			3.5

[1] Facilities transferred to Unit B Irrigation and Drainage District, Jan. 1, 1960.
[2] Figures on calendar year basis.

NOTE.—Includes 101 acres under Warren Act contracts.

Parker-Davis project, Arizona-California-Nevada

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau: Power system:				
Annual sales	Kilowatt-hour	1,367,152,329	1,330,650,000	1,327,790,000
Revenues from sale of electrical energy.	Dollar	5,439,355	5,041,454	5,011,199
Powerplants	Number	2	2	2
Plant capacity (nameplate capacity)	Kilowatt	345,000	345,000	345,000
Patrol roads	Mile	1,394	1,394	1,394
Transmission lines:				
Circuit	do	1,599.8	1,599.8	1,599.8
Structural	do	1,598.1	1,598.1	1,598.1
Substations	Number	36	36	36
Substations: Capacity	Kilovolt-ampere	1,933,833	1,993,833	1,993,833

Cachuma project, California

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau: Irrigation system: Storage dams and reservoirs	Number	1	1	1
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land—full	Acre	500	500	500
Irrigation service land—supplemental	do	26,544	26,544	30,225
Irrigated area	do.[1]	12,580	13,000	13,000
Gross crop value	Dollar [1]	8,575,727	8,775,000	8,775,000
Average gross crop value per acre.	do.[1]	682	675	675
Storage dams and reservoirs	Number	4	4	4
Tunnel	Mile	6	6	6
Conduit	do	27	27	27
Municipal system: Intial use	Acre-foot	10,300	10,300	10,300

[1] Figures on calendar year basis.

Solano project, California

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by bureau: Irrigation system:				
Storage dams and reservoirs	Number		1	1
Diversion dams	do		1	1
Facilities operated by water users: Irrigation system:				
Irrigable acreage for service:				
Irrigation service land—full	Acre		71,881	71,881
Irrigation service land—supplemental.	do		24,187	24,187
Total	do		96,068	96,068
Irrigated area	do		2,000	4,500
Gross crop value	Dollar		400,000	945,000
Average gross crop value per acre	do		200	210
Canals	Mile		38	38

Colorado-Big Thompson project, Colorado

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dams and reservoirs	Number	6	6	6
Pumping plants	do	2	2	2
Canals, tunnels, conduits, siphons, etc	Mile	49.8	49.8	49.8
Drains	do	0.4	0.4	0.4
Operating roads	do	45	45	45
Power system:				
Annual sales [1]	Kilowatt-hour			
Total power revenue [1]	Dollar			
Transmission lines:				
Circuit	Mile	43.26	43.26	43.26
Structural	do	43.26	43.26	43.26
Switchyards	Number	2	2	2
Switchyards—Capacity	Kilovolt-ampere	25,750	25,750	25,750
Powerplants	Number	6	6	6
Plant capacity (nameplate capacity).	Kilowatt	183,950	183,950	183,950
Storage dams and reservoirs	Number	4	4	4
Pumping plants	do	1	1	1
Canals, tunnels, conduits, siphons, etc.	Mile	1.3	1.3	1.3
Patrol roads	do	25	25	25
Facilities operated by water users: Irrigation system:				
Irrigable acreage for service: Irrigable service land—Supplemental.	Acre	720,000	720,000	720,000
Net area in cultivation (entire area)	do	720,000	720,000	720,000
Gross crop value	Dollar [2]	71,295,565	72,000,000	72,000,000
Average gross crop value per cultivated acre.	do [2]	99	100	100
Diversion dams	Number	2	2	2
Canals, tunnels, conduits, siphons, etc.	Mile	78.8	78.8	78.8

[1] Sales and revenue for Colorado-Big Thompson shown in statistics for Missouri River Basin project, South Platte area.
[2] Figures on calendar year basis (estimated).

Grand Valley project, Colorado

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Power system:				
Annual sales	Kilowatt-hour			20,000,000
Revenues from sale of electrical energy.	Dollar			76,280
Powerplants	Number			1
Plant capacity (nameplate capacity).	Kilowatt			3,000
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land-full	Acre	34,686	34,686	34,686
Irrigation service land-supplemental.	do	7,730	7,730	7,730
Irrigated area	do [1]	35,514	35,500	35,500
Gross crop value	Dollar [1]	4,709,281	4,721,500	4,721,500
Average crop value per acre	do. [1]	132.60	133	133
Diversion dams	Number	1	1	1
Pumping plants	do	2	2	2
Canals	Mile	94	94	94
Laterals	do	166	166	166
Drains	do	160	160	160
Operating roads	do	140	140	140
Telephone lines	do	7	7	7

[1] Figures on calendar year basis.

San Luis Valley project, Colorado

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system: Storage dams and reservoirs.	Number	1	1	1
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land-supplemental.	Acre	81,000	81,000	81,000
Irrigated area	do	(1)	(1)	(1)
Gross crop value	Dollar	(1)	(1)	(1)
Average gross crop value per acre.	do	(1)	(1)	(1)

[1] Water delivered under water rental, crop census data not available.

Boise project, Idaho

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dams and reservoirs	Number	4	4	4
Diversion dams	do	2	2	2
Power system:				
Annual sales [1]	Kilowatt-hour	119,171,215	141,000,000	137,000,000
Revenues from sale of electrical energy.[1]	Dollar	299,466	348,000	342,000
Powerplants	Number	3	3	3
Plant capacity (nameplate capacity).	Kilowatt	36,500	36,500	36,500
Patrol roads	Mile	23	23	23
Transmission lines:				
Circuit	do	54	54	54
Structural	do	54	54	54
Substations	Number	8	8	8
Substations, capacity	Kilovolt-ampere	83,250	83,250	83,250
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land-full	Acre	224,761	224,761	224,761
Irrigation service land-supplemental.	do	136,115	136,115	136,115
Total	do	360,876	360,876	360,876
Irrigated area	do [2]	327,909	327,909	327,909
Gross crop value	Dollar [2]	34,439,027	34,400,000	34,400,000
Average gross crop value per acre.	do [2]	105.03	107	110
Storage dams and reservoirs	Number	1	1	1
Canals	Mile	155	155	155
Laterals	do	1,170	1,170	1,170
Drains	do	395	395	395
Telephone lines	do	55	55	55
Operating roads	do	985	985	985

[1] Excludes interproject sales.
[2] Figures on calendar year basis.

Minidoka Area projects, Idaho-Wyoming

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land—full.	Acre	79,414	84,297	84,297
Irrigated area	Acre [1]	64,518	75,000	75,000
Gross crop value	Dollar [1]	7,968,642	8,850,000	8,850,000
Average gross crop value per acre.	do [1]	124	118	118
Storage dams and reservoirs	Number	6	6	6
Diversion dams	do	2	2	2
Canals	Mile	25.7	25.7	25.7
Laterals	do	190	190	190
Drains	do	385	385	385
Irrigation wells	Number	194	195	195
Major pumping plants	do	2	2	2
Operating roads	Mile	176	176	176
Power system:				
Minidoka:				
Annual sales	Kilowatt-hour	167,776,240	180,000,000	195,000,000
Revenues from sale of electrical energy.	Dollar	792,366	824,000	893,000
Powerplants	Number	1	1	1
Plant capacity	Kilowatt	13,400	13,400	13,400
Telephone lines	Mile	11	11	11
Patrol roads	do	16	16	16
Transmission lines	do	108	108	108
Substations	Number	25	25	26
Substation capacity	Kilovolt-ampere	92,295	92,295	98,000
Palisades:				
Annual sales	Kilowatt-hour	512,068,029	512,000,000	515,000,000
Revenues from sale of electrical energy.	Dollar	1,609,017	1,608,700	1,618,000
Powerplants	Number	1	1	1
Plant capacity	Kilowatt	114,000	114,000	114,000
Patrol roads	do	1	1	1
Transmission lines	do	112	112	112
Substations	Number	2	2	2
Substation capacity	Kilovolt-ampere	277,500	277,500	277,500
Facilities operated by water users:				
Irrigation system: Irrigable acreage for service:				
Irrigation service land—full	Acre	140,020	140,000	140,000
Irrigation service land—supplemental.	do	938,326	938,400	938,400
Total	do	1,078,346	1,078,400	1,078,400
Irrigated area	Acre [1]	997,468	997,500	997,500
Gross crop value	Dollar [1]	82,860,725	82,860,000	82,860,000
Average gross crop value per acre.	do [1]	83	83	83
Canals	Mile	267.5	267.5	267.5
Laterals	do	406	406	406
Drains	do	162	162	162
Pumping plants	Number	3	3	3
Drain pumps	do	55	55	55

[1] Figures on calendar year basis.

Hungry Horse project, Montana

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Power system:				
Annual sales	Kilowatt-hour	1,014,791,100	900,000,000	900,000,000
Revenues from sale of electrical energy.	Dollar	3,822,705	[1] 3,844,144	[1] 3,837,044
Powerplants	Number	1	1	1
Plant capacity (nameplate capacity).	Kilowatt	285,000	285,000	285,000
Patrol roads (access)	Mile	4	4	4
Transmission lines:				
Circuit	do	4	4	4
Structural	do	4	4	4
Substations	Number	1	1	1
Substations, capacity	Kilovolt-ampere	438,650	438,650	438,650

[1] Based on power repayment study dated Aug. 20, 1958.

Milk River project, Montana

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dams and reservoirs	Number	2	2	2
Diversion dams	do	1	1	1
Canals	Mile	29	29	29
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land, full.	Acre	134,082	134,082	134,082
Irrigated area	do.[1]	87,549	88,000	88,000
Gross crop value	Dollar [1]	4,089,553	4,130,000	4,130,000
Average gross crop value per acre.	do [1]	47	47	47
Storage dams and reservoirs	Number	1	1	1
Pumping plants	do	1	1	1
Diversion dams	do	2	2	2
Canals	Mile	170	170	170
Laterals	do	248	248	248
Drains	do	185	190	195
Operating roads	do	110	110	110

[1] Figures on calendar year basis.

North Platte project, Nebraska-Wyoming

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Storage dams and reservoirs	Number	2	2	2
Diversion dams	do	1	1	1
Drainage diversion works (includes 3 diversion dams and 3 miles of canals)		3	3	3
Power system:				
Annual sales	Kilowatt-hour	120,043,339	(1)	(1)
Revenue from sale of electrical energy.	Dollar	767,076	(1)	(1)
Powerplants	Number [2]	1	1	1
Plant capacity (nameplate capacity).	Kilowatt [2]	4,800	4,800	4,800
Patrol roads	Mile	75	(1)	(1)
Transmission lines:				
Circuit	do	205	(1)	(1)
Structural	do	205	(1)	(1)
Substations	Number	3	(1)	(1)
Substations, capacity	Kilovolt-ampere	6,495	(1)	(1)
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land, full	Acre	226,323	226,323	226,323
Irrigation service land, supplemental.[3]	do	108,715	108,715	108,715
Irrigated area	Acre [4]	314,678	315,000	315,000
Gross crop value	Dollar [4]	23,751,634	23,750,000	23,750,000
Average gross crop value per acre.	do [4]	75	75	75
Storage dams and reservoirs	Number	2	2	2
Canals	Mile	337	337	337
Laterals	do	1,261	1,261	1,261
Drains	do	373	373	373
Telephone lines	do	214	214	214
Operating roads	do	337	337	337

[1] Integrated with Missouri River Basin project.
[2] Does not include Lingle powerplant which has been inoperative since May 1, 1956.
[3] Land in private irrigation districts that purchased storage rights in Pathfinder Reservoir.
[4] Figure on calendar year basis.

Carlsbad project, New Mexico

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system: Storage dams and reservoirs.	Number	1	1	1
Facilities operated by water users:				
Irrigation system:				
Storage dams and reservoirs	do	2	2	2
Irrigable acreage for service: Irrigation service land-full.	Acre	25,055	25,055	25,055
Irrigated area	Acre [1]	19,050	19,000	19,000
Gross crop value	Dollar [1]	4,396,616	4,389,000	4,389,000
Average gross crop value per acre.	do.[1]	231	231	231
Diversion dams	Number	1	1	1
Canal	Mile	28	28	28
Laterals	do	151	151	151
Drains	do	24	24	24

[1] Figures on calendar year basis.

Rio Grande project, New Mexico-Texas

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by bureau:				
Irrigation system:				
Irrigable acreage for service:				
Irrigation service land-full	Acre	178,196	178,196	178,196
Irrigation service land-supplemental	do	18,330	18,330	18,330
Total		196,526	196,526	196,526
Irrigated area [1]	Acre [2]	140,802	137,000	140,000
Gross crop value	Dollars [2]	41,378,029	41,100,000	42,000,000
Average gross crop value per acre	do [2]	294	300	300
Storage dams and reservoirs	Number	2	2	2
Diversion dams	do	4	4	4
Canals	Mile	141	141	141
Laterals	do	462	462	462
Drains	do	457	457	457
Operating roads	do	470	470	470
Power system:				
Annual sales	Kilowatt-hour	86,871,397	75,000,000	100,000,000
Revenues from sale of electrical energy	Dollar	431,553	396,637	486,000
Powerplants	Number	1	1	1
Plant capacity (nameplate capacity)	Kilowatt	24,300	24,300	24,300
Patrol roads	Mile	435	435	435
Transmission lines:				
Circuit	do	491	491	491
Structural	do	491	491	491
Substations	Number	11	11	11
Substations, capacity	Kilovolt-ampere	81,750	81,750	81,750

[1] Excludes Hudspeth County Conservation and Reclamation District No. 1.
[2] Figures on calendar year basis.

W. C. Austin project, Oklahoma

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system: Storage dams and reservoirs.	Number	1	1	1
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land-full.	Acre	47,809	47,809	47,809
Irrigated area	do [1]	41,249	41,000	41,000
Gross crop value	Dollar [1]	6,579,626	6,519,000	6,519,000
Average gross crop value per acre.	do. [1]	159	159	159
Canals	Mile	52	52	52
Laterals	do	218	218	218
Drains	do	26	26	26
Operating roads	do	280	280	280

[1] Figures on calendar year basis.

Falcon project, Texas

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Power system:				
Annual sales	Kilowatt-hour	166,058,300	120,000,000	120,000,000
Revenues from sale of electrical energy.	Dollar	470,503	[1] 495,000	[1] 345,000
Powerplants	Number	[2] 1	[2] 1	[2] 1
Plant capacity (nameplate capacity).	Kilowatt	[2] 31,500	[2] 31,500	[2] 31,500

[1] Includes peaking capacity charges: Fiscal year 1960, $300,000; fiscal year 1961, $150,000.
[2] Bureau marketing agent only. Powerplants operated by others.

Yakima project, Washington

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land-full.[1]	Acre	72,511	72,511	72,511
Irrigated area [1]	Acre [2]	65,935	66,600	69,600
Total crop value [1]	Dollars [2]	14,176,419	14,500,000	15,173,000
Average total crop value per acre.[1]	do.[2]	215	218	218
Storage dams and reservoirs	Number	6	6	6
Diversion dams	do	4	3	3
Canals	Mile	95	95	95
Pumping plants	Number	19	19	19
Laterals	Mile	435	435	435
Drains	do	33	36	36
Telephone lines	do	109	109	109
Operating roads	do	150	150	150
Power system:				
Annual sales	Kilowatt-hour	135,498,231	144,000,000	144,000,000
Revenues from sale of electrical energy.	Dollar	374,077	428,000	428,000
Powerplants	Number	2	2	2
Plant capacity (nameplate capacity).	Kilowatt	23,250	23,250	23,250
Diversion dams	Number	2	2	2
Canals	Mile	21.5	21.5	21.5
Patrol roads	do	17	17	17
Transmission lines:				
Circuit	do	77	77	77
Structural	do	77	77	77
Substations	Number	10	10	10
Substations, capacity	Kilovolt-ampere	39,000	39,000	39,000
Facilities operated by water users:				
Irrigation system:				
Irrigation service land-full	Acre	207,411	207,411	207,411
Irrigation service land-supplemental.	do	[3] 182,014	[3] 182,014	[3] 182,014
Irrigated area	Acres [2]	327,924	332,000	332,000
Total crop value	Dollar [2]	65,285,111	66,800,000	66,800,000
Average total crop value per acre	do.[2]	199	201	201
Diversion dams	Number	1	2	2
Canals	Mile	319	319	319
Pumping plants	Number	9	9	9
Laterals	Mile	1,075	1,075	1,075
Drains	do	40	60	60
Telephone lines	do	263	263	263
Operating roads	do	310	310	310

[1] Includes only Roza division.
[2] Figures are on calendar year basis.
[3] Includes 170 acres of water rental lands.

Kendrick project, Wyoming

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system: Storage dams and reservoirs.	Number	2	2	2
Power system:				
Annual sales	Kilowatt-hour	(1)	(1)	(1)
Revenues from sale of electrical energy.	Dollar	(1)	(1)	(1)
Powerplants	Number	2	2	2
Plant capacity	Kilowatt	68,400	68,400	68,400
Telephone lines	Mile	35	35	35
Facilities operated by water users:				
Irrigation system:[2]				
Irrigable acreage for service: Irrigation service land-full.	Acre	23,957	23,957	23,957
Irrigated area	Acre [3]	18,168	18,874	20,000
Gross crop value	Dollar [3]	514,410	566,200	640,000
Average gross grop value per acre.	do [3]	35	37	37
Canals	Mile	62	62	62
Laterals	do	189	189	189
Drains	do	30	30	30
Operating roads	do	135	135	135

[1] Amounts included with Missouri River Basin project.
[2] Irrigation system turned over to water users Jan. 1, 1958.
[3] Figures on calendar year basis.

Riverton project, Wyoming

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigation service land—full	Acre	8,585	8,585	8,585
Irrigation service land (water rentals).	do	7,942	8,000	8,000
Total	do	16,527	16,585	16,585
Irrigated area	Acre [1]	15,924	16,000	16,000
Gross crop value	Dollar [1]	284,559	560,000	560,000
Average gross crop value per irrigated acre.	do [1]	18	35	35
Canals	Mile	46	46	46
Laterals	do	64	64	64
Drains	do	57	70	75
Operating roads	do	110	110	110
Power system: [2]				
Powerplants	Number	1	1	1
Plant capacity	Kilowatt	1,600	1,600	1,600
Facilities operated by water users:				
Irrigation system:				
Irrigation service land—full	Acre	44,360	43,871	43,871
Irrigation service land—supplemental (water rentals).	do	1,217	1,300	1,300
Irrigated area	Acre [1]	42,690	43,000	43,000
Gross crop value	Dollar [1]	1,836,439	1,892,000	1,892,000
Average gross crop value per irrigated acre.	do [1]	43	44	44
Storage dams and reservoirs	Number	2	2	2
Diversion dams	do	1	1	1
Canals	Mile	54	54	54
Laterals	do	376	376	376
Drains	do	135	160	174
Telephone lines	do	66	66	66
Operating roads	do	192	192	192

[1] Figures on calendar year basis.
[2] Annual sales, total power revenues, transmission lines, and substations are reported on project statistics for Missouri River Basin project.

Shoshone project, Wyoming

Feature or item	Unit	Actual, fiscal year 1959	Estimated	
			Fiscal year 1960	Fiscal year 1961
Facilities operated by Bureau:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land-full.	Acre	26,070	26,070	26,070
Irrigated area	do.[1]	23,916	24,000	24,200
Gross crop value	Dollar [1]	1,496,688	1,512,000	1,548,800
Average gross crop value per acre.	do.[1]	63	63	64
Storage dams and reservoirs	Number	1	1	1
Canals	Mile	26	26	26
Laterals	do	141	141	141
Drains	do	125	129	132
Operating roads	do	85	85	85
Power system: [2]				
Powerplants	Number	2	2	2
Plant capacity (nameplate capacity).	Kilowatt	10,600	10,600	10,600
Facilities operated by water users:				
Irrigation system:				
Irrigable acreage for service: Irrigation service land-full.	Acre [1]	67,361	67,361	67,361
Irrigated area	do.[1]	52,123	52,150	52,250
Gross crop value	Dollar [1]	2,910,540	2,972,550	2,978,250
Average gross crop value per acre.	do.[1]	52	57	57
Diversion dams	Number	2	2	2
Canals	Mile	111	111	111
Laterals	do	201	201	201
Drains	do	300	300	300
Operating roads	do	145	145	145

[1] Figures on a calendar year basis.
[2] Annual sales, total power revenues, transmission lines, and substations are reported on project statistics for Missouri River Basin project.

ITEMIZATION OF ESTIMATE

Operation and maintenance

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (−)
Program and financing:			
Total obligations	$32,141,454	$35,470,240	+$3,328,786
Non-Federal funds advanced by water users:			
Unobligated balance brought forward	−1,332,482	−1,085,233	+247,249
New advances	−3,491,480	−3,398,180	+93,300
Unobligated balance carried forward	1,085,233	913,173	−172,060
New obligational authority	28,402,725	31,900,000	+3,497,275
New obligational authority:			
Reclamation fund, special fund	23,072,400	26,496,000	+3,423,600
Colorado River Dam fund, Boulder Canyon project	2,030,000	1,335,000	−695,000
General fund	3,300,325	4,069,000	+768,675
Appropriation	28,402,725	31,900,000	+3,497,275
Object classification:			
01 Personal services	21,591,363	22,028,483	+437,120
02 Travel	399,325	466,230	+66,905
03 Transportation of things	87,350	104,895	+17,545
04 Communication services	330,975	338,040	+7,065
05 Rents and utility services	399,225	411,790	+12,565
06 Printing and reproduction	33,159	27,715	−5,444
07 Other contractual services	2,951,676	3,390,574	+438,898
Services performed by other agencies	244,629	309,242	+64,613
08 Supplies and materials	2,812,245	3,076,249	+264,004
09 Equipment	799,209	1,420,454	+621,245
10 Lands and structures	1,477,038	2,822,846	+1,345,808
11 Grants, subsidies, and contributions	1,312,500	1,376,452	+63,952
13 Refunds, awards, and indemnities	32,675	32,455	−220
15 Taxes and assessments	28,750	30,241	+1,491
Subtotal	32,500,119	35,835,666	+3,335,547
Deduct charges for quarters and subsistence	358,665	365,426	−6,761
Total obligations	32,141,454	35,470,240	+3,328,786

Explanation of difference between amounts shown in U.S. budget (itemization of estimate) and congressional justification

	1960 obligations	1961 obligations
U.S. budget	$32,141,454	$35,470,240
Change in allotment:		
Central Valley	+19,804	----------
Boise	+16,000	----------
Hungry Horse	−19,000	----------
Rogue River, Talent	+3,000	----------
Soil and moisture	−19,804	----------
Change in non-Federal funds advanced by water users:		
Yuma area	+18,060	−11,100
Klamath	+60,000	+65,000
Non-Federal funds advanced by other than water users not included in U.S. budget:		
Colorado-Big Thompson	+3,395	----------
North Platte	+1,200	----------
Middle Rio Grande	+150,000	+150,000
Missouri River Basin	+3,887	----------
Soil and moisture	+11,975	+9,150
Fort Peck continuing fund included in congressional justification: Missouri River Basin	+900,000	+1,024,000
Congressional justification	33,289,971	36,707,290

Mr. RABAUT. No questions.

UPPER COLORADO RIVER BASIN FUND

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Colorado River storage project:			
(a) Curecanti unit (Blue Mesa), Colorado			$1,863,626
(b) Flaming Gorge unit, Utah	$4,917,247	$11,740,638	18,411,673
(c) Glen Canyon unit, Arizona	27,934,827	27,128,744	62,690,484
(d) Navajo unit, New Mexico	7,908,900	10,469,408	12,060,000
(e) Transmission division	222,769	755,033	536,287
(f) Advance planning	3,571,632	985,034	970,098
2. Participating projects:			
(a) Central Utah project, Vernal unit	1,074,970	2,360,672	2,228,317
(b) Florida project, Colorado			1,017,956
(c) Hammond project, New Mexico		608,612	1,280,000
(d) Paonia project, Colorado	3,172,809	3,132,666	1,040,536
(e) Seedskadee project, Wyoming		1,762,525	3,975,956
(f) Smith Fork project, Colorado		575,422	1,444,000
3. Undistributed reduction based on anticipated delays		−175,000	−2,209,000
Total program costs	48,803,154	59,343,754	105,309,933
4. Unfunded adjustments to total program costs:			
Interest on investment included above (−)	−1,067,286	−1,605,604	−3,531,745
Property transferred in (−) without charge	−5,225,663	−1,675,486	−966,573
Property transferred in (−) without charge, service facilities	−134,274	−88,677	−97,000
Total program costs, funded	42,375,931	55,973,987	100,714,615
5. Relation of costs to obligations:			
Costs financed from obligations of other years, net (−)			−11,114,615
Obligations incurred for costs of other years, net	25,220,510	2,560,623	
Total programs (obligations) [1]	67,596,441	58,534,610	89,600,000
Financing:			
Amounts becoming available:			
Appropriation	68,033,335	74,459,775	71,600,000
Contributions [2]	231,199	80,581	
Nonoperating revenue	3,189	3,000	1,800
Recovery of prior year obligations	80,137		
Total amounts becoming available	68,347,860	74,543,356	71,601,800
Unobligated balance brought forward	1,246,024	1,994,254	18,000,000
Total amounts available	69,593,884	76,537,610	89,601,800
Capital transfer (payment of profits to Treasury) (−)	−3,189	−3,000	−1,800
Unobligated balance carried forward	−1,994,254	−18,000,000	
Financing applied to program	67,596,441	58,534,610	89,600,000

[1] Includes $4,852,158 of contract earnings which were shown in project costs in 1958 but not obligated until 1959.

[2] Represents contributions from city, State, and Federal governmental units.

Object classification

		1959 actual	1960 estimate	1961 estimate
	Total number of permanent positions	1,149	1,312	1,477
	Full-time equivalent of all other positions	50	48	40
	Average number of all employees	954	1,144	1,455
	Number of employees at end of year	983	1,298	1,494
	Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
	Average salary of ungraded positions	$5,228	$5,412	$5,481
01	Personal services:			
	Permanent positions	$5,716,890	$6,870,656	$8,766,762
	Positions other than permanent	243,284	227,310	196,037
	Other personal services	123,047	237,142	235,770
	Total personal services	6,083,221	7,335,108	9,198,569
02	Travel	161,720	255,702	299,063
03	Transportation of things	193,868	408,104	484,037
04	Communication services	84,694	108,573	127,018
05	Rents and utility services	96,615	157,642	194,875
06	Printing and reproduction	76,713	64,553	74,896
07	Other contractual services	520,590	738,614	460,146
	Services performed by other agencies	282,893	71,230	57,000
08	Supplies and materials	406,637	5,596,962	9,166,095
09	Equipment	291,958	490,507	457,976
10	Lands and structures	44,197,805	40,903,603	79,670,398
11	Grants, subsidies, and contributions	365,306	458,320	579,355
13	Refunds, awards, and indemnities	2,760	4,350	4,800
15	Taxes and assessments	7,223	7,929	8,450
	Subtotal	52,772,003	56,601,197	100,782,678
	Deduct quarters and subsistence charges	126,161	217,100	318,100
	Total accrued expenditures	52,645,842	56,384,097	100,464,578
	Increase or decrease (−) in unpaid undelivered orders	14,950,599	2,150,513	−10,864,578
	Total obligations	67,596,441	58,534,610	89,600,000

Mr. RABAUT. Now, we will take up the Upper Colorado River Basin, $71,600,000. We will insert pages 400 through 403.

(The pages above referred to are as follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Various locations on the Colorado River and its tributaries and adjacent areas in the states of Arizona, Colorado, New Mexico, Utah and Wyoming.

AUTHORIZATION Act of April 11, 1956 (70 Stat. 105) | B/C RATIO 1.3 | Date Jan. 1959

LAND CERTIFICATION (See individual units) | DEFINITE PLAN REPORT (See individual units)

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 974,051,678	Appropriations to June 30, 19 59	$ 116,175,335
Net Property and Other Transfers	29,755,557	Appropriations for F. Y. 19 60	74,459,775
Cash Advances--Non-Federal	1,759,220	Appropriations to Date	190,635,110
Adjustment	1/ 52,441,000	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 1961	71,600,000
Total to be Allocated	$ 1,058,007,455	Balance to Complete after F.Y. 1961	$ 711,816,568

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 331,528,000	Amount Repaid by Irrigators	$ 42,073,000	Irrig. Invest. per Acre ($ See	Payment Capacity (See
Power	2/ 647,746,000	Amount Repaid by Power	2/ 937,201,000	Repayment of Invest. Individual	per Acre Ind. ~~Federal~~
M. & I. Water	3/ 45,631,000	Amount Repaid by M. & I. Water	3/ 46,861,000	ment per acre: Participating	Annual Charges: $ Units)
Flood & Nav.	4/ 3,700,000			By Irrigators Units and	O. & M.
Recreation	2/ 10,859,000			By Power Revenues Projects)	Construction
Fish & Wildlife	2/ 1,660,000			By M. & I. Water Users	
Other	6/ 5,342,455	Non - Reimbursable	7/ 31,872,455		
Total	1,058,007,455	Total	1,058,007,455		Total $

STATUS OF REPAYMENT CONTRACT:
See individual units

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Curecanti Unit:				Curecanti Powerplants:			
Blue Mesa	915,000 AF	-	6-66	Blue Mesa	60,000 KW	-	6-66
Morrow Point	117,000 AF	-	6-70	Morrow Point	40,000 KW	-	6-70
Flaming Gorge Dam	3,789,000 AF	18	6-64	Flaming Gorge powerplant	108,000 KW	10	6-64
Glen Canyon Dam	28,040,000 AF	29	6-64	Glen Canyon Powerplant	900,000 KW	9	6-66
Navajo Dam	1,709,000 AF	35	3-63				

Acreage Full Supply 113,900 Supplemental Supply 231,900 Total Acres 345,800 Power kw 1,169,000

Region	Date	Project and State
4	1/18/60	Colorado River Storage and Participating Projects, Arizona-Colorado-New Mexico-Utah-Wyoming

53-400

[1] Reimbursable interest during construction.
[2] Includes reimbursable interest during construction totaling $49,981,000 as follows:

Glen Canyon	$29,453,000
Flaming Gorge	3,390,000
Curecanti	4,987,000
Transmission division	9,089,000
Central Utah project	3,062,000

[3] Includes reimbursable interest during construction on Vernal unit, central Utah project of $22,000 and remaining units of central Utah project of $2,438,000, totaling $2,460,000.
[4] To be financed by funds other than Upper Colorado River Basin fund under sec. 8 of authorizing act.
[5] Includes $2,633,000 to be financed from Upper Colorado River Basin fund under sec. 6 of act of Apr. 11, 1956, and $1,728,000 to be financed by other funds under sec. 8 of act of Apr. 11, 1956.
[6] Includes $2,825,985 nonreimbursable from CRDF and $2,516,220, contributions and advances.
[7] Includes flood control, recreation, fish and wildlife conservation, Colorado River development fund investigations, contributions, and advances.

Colorado River Storage Project and Participating Projects—General Statement

Summarized financial data

Fiscal year 1960:	
Appropriation	$74,459,775
Non-Federal advance from State of Colorado	65,000
Application of prior-year funds	1,636,175
Balance available in subsequent years	−18,000,000
Total obligation program, fiscal year 1960	[1] 58,160,950
Fiscal year 1961:	
Appropriation	71,600,000
Application of prior-year funds	18,000,000
Total obligation program, fiscal year 1961	[2] 89,600,000

[1] Excludes initial underfinancing of $175,000.
[2] Excludes initial underfinancing of $2,209,000.

The Bureau is requesting $71,600,000 for work financed by Upper Colorado River Basin fund in fiscal year 1961. This amount plus $2,209,000 initial underfinancing and $18 million of prior-year funds will provide a total program of $91,809,000. As of June 30, 1960, construction work will be underway on three storage units of the Colorado River storage project and five participating projects. In addition, the advance planning program leading to plans for development of the remaining storage unit and participating projects will be active, and investigations of future high-voltage lines will be in progress on the transmission division.

With the funds requested for fiscal year 1961 construction of the main storage dams and appurtenant works on the Flaming Gorge, Glen Canyon, and Navajo projects will continue, and studies will continue on the transmission facilities under the transmission division. Construction of the Hammond, Seedskadee, and Smith Fork participating projects will be in progress, and funds are provided to initiate construction of the Blue Mesa facilities of the Curecanti unit and the Florida participating project. Investigation of future developments will continue under the advance planning program. During fiscal year 1961 construction will continue on Paonia participating project and Vernal unit, and irrigation service will be made available on the Paonia project to about 1,200 acres of new land and 700 acres of land now inadequately served.

Upper Colorado River Basin fund

Activity	Fiscal year 1960				Fiscal year 1961		
	Appropriations	Prior year funds programed	Other	Total obligations	Appropriations	Prior year funds programed	Total obligations
Colorado River storage project and participating projects:							
Colorado River storage project:							
Curecanti unit, Colorado					$1,400,000		$1,400,000
Flaming Gorge unit, Utah-Wyoming	$12,675,000	$222,673		$12,897,673	12,000,000		12,000,000
Glen Canyon unit, Arizona-Utah	43,736,075	635,396	[1] −$18,000,000	26,371,471	35,535,000	$18,000,000	53,535,000
Navajo unit, Colorado-New Mexico	9,696,375	445,569		10,141,944	11,776,000		11,776,000
Transmission division	702,000	62,267		764,267	518,000		518,000
Advance planning	797,550	163,463		961,013	938,000		938,000
Participating projects:							
Central Utah project, Vernal unit, Utah	1,950,000	65,337		2,015,337	2,189,000		2,189,000
Florida project, Colorado					750,000		750,000
Hammond project, New Mexico	292,500		[2] 100,000	392,500	1,300,000		1,300,000
Paonia project, Colorado	3,105,375	41,470	[3] 65,000	3,211,845	903,000		903,000
Seedskadee project, Wyoming	1,154,400			1,154,400	5,000,000		5,000,000
Smith Fork project, Colorado	350,500		[3] 75,000	425,500	1,500,000		1,500,000
Subtotal, Upper Colorado River Basin fund	74,459,775	1,636,175	−17,760,000	58,335,950	73,809,000	18,000,000	91,809,000
Undistributed reduction based on anticipated savings and slippage			−175,000	−175,000	−2,209,000		−2,209,000
Total, Upper Colorado River Basin fund	74,459,775	1,636,175	−17,935,000	58,160,950	71,600,000	18,000,000	89,600,000

[1] Fiscal year 1960 unobligated balance programed in fiscal year 1961.
[2] Initial underfinancing.
[3] Non-Federal advance by State of Colorado.

COLORADO RIVER STORAGE PROJECT

CURECANTI UNIT, COLORADO

Mr. RABAUT. Curecanti unit, $1,400,000. We will insert pages 404 through 409 of the justification.

(The pages above referred to are as follows:)

PF - 65
(7 - 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Colorado River Basin--Gunnison River in Montrose County, Colorado, on Gunnison River between Gunnison, Colorado, and the Black Canyon of the Gunnison National Monument.

AUTHORIZATION Act of April 11, 1956 | B/C RATIO 1.23 [5] Date Feb. 1959

LAND CERTIFICATION None required | ECONOMIC JUSTIFICATION REPORT February 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 68,581,550	Appropriations to June 30, 19	$
Net Property and Other Transfers	3,833,450	Appropriations for F. Y. 19	
Cash Advances--Non-Federal	35,000	Appropriations to Date	
Adjustment	1/ 4,987,000	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 19 61	3/ 1,400,000
Total to be Allocated	$ 77,437,000	Balance to Complete after F.Y. 19 61	$ 67,181,550

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 2,793,000	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power	1/ 70,230,550	Amount Repaid by Power	73,023,550	Repayment of Investment per acre:	
Contribution	2/ 135,000	Amount Repaid by M. & I. Water		By Irrigators	$
Flood & Nav.	1,013,000			By Power Revenues	
CRD Invest.	97,000			By M. & I. Water Users	
Recreation	3,268,450	Non - Reimbursable	4/ 4,413,450		
Total	$ 77,437,000	Total	$ 77,437,000		

Payment Capacity per Acre $

Annual Charges:
O. & M. $
Construction
Total $

STATUS OF REPAYMENT CONTRACT:

None required

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Blue Mesa Dam & Reservoir	915,000 AF.	0	6-66				
Blue Mesa Powerplant & Swyd	60,000 KW.	0	6-66				
Morrow Point Dam & Reser.	117,000 AF.	0	6-70				
Morrow Point PP & Switchyd.	40,000 KW.	0	6-70				
Permanent Operating Facil.		0	6-70				
Permanent Camp		0	1967				
Temporary Camp		0	1967				

Acreage Full Supply ____ Supplemental Supply ____ Total Acres ____ Power kw 100,000

Region	Date	Project and State
4	1/18/60	Colorado River Storage Project, Curecanti Unit, Colorado

Note: Above figures based on integrated two dam unit on which Economic Justification was made to Congress (H.D. 201, 86th Congress, First Session). Only construction of Blue Mesa facilities currently scheduled.

BR-404

[1] Includes $4,987,000 reimbursable interest during construction.
[2] Contribution by State of Colorado for advance planning.
[3] For initiation of construction of Blue Mesa Dam and associated facilities.
[4] Includes contribution, flood control, Colorado development fund investigations and recreation cost which is to be financed from other than the Upper Colorado River Basin fund.
[5] Benefit-cost ratio shown on project data sheet is based on 2½ percent interest. Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.20. Benefit-cost ratio based on total benefits and 3 percent interest is 1.14.

JUSTIFICATION

Description.—The Curecanti unit is one of four authorized storage units of the Colorado River storage project and participating projects. The primary purposes of the Curecanti unit are the regulation and storage of floodflows of the Gunnison River and the generation of hydroelectric power. Water stored, as in other storage units of the project, will assist in complying with the terms of the Colorado River compact. In addition, it will provide benefits to recreation, fish and wildlife conservation and irrigation in the Upper Colorado River Basin. The project data sheet figures are based on the integrated two-dam unit although the Blue Mesa facilities are all that are currently scheduled for construction.

The Blue Mesa and Morrow Point features of the unit will together develop 760 feet of the 1,000 feet of potential power head along a 40-mile reach of a deep canyon section of the Gunnison River located below Gunnison, Colo., and above the Black Canyon of the Gunnison National Monument. Each of these two features consists of a dam and reservoir on the river with a powerplant at the toe of the dam. Investigations are underway of the economic feasibility of including a third development in the unit—Crystal Dam, Reservoir, and powerplant.

The Blue Mesa Dam will be located on the river at a point about 30 miles below Gunnison and 1½ miles below Sapinero, Colo. The earthfill and rockfill structure will rise 350 feet above streambed. The Blue Mesa Reservoir will have a capacity of 915,000 acre-feet when filled to its normal high water elevation. The Blue Mesa powerplant at the toe of the dam will have an installed capacity of 60,000 kilowatts. The fiscal year 1961 appropriation requested is to be used for initiation of the Blue Mesa Dam and associated facilities.

The Morrow Point Dam, a concrete arch structure 400 feet high, is to be constructed 12 miles below Blue Mesa Dam about a quarter a mile above the mouth of Cimmaron Creek. The Morrow Point Reservoir will impound 117,000 acre-feet of water and provide head for a powerplant of 40,000 kilowatts of installed generating capacity. No construction on the Morrow Point facilities is scheduled in the immediate future.

Work proposed, fiscal year 1961:

Blue Mesa Dam and Reservoir, $1,250,000.—Provides funds for the State of Colorado to make surveys and prepare an estimate of the cost of relocating U.S. Highway No. 50 around reservoir. The program also provides for acquisition of right-of-way for damsite and area required for construction activities. Designs for construction of the dam will be prepared in order to be ready to award the contract as soon as right-of-way and highway relocation actions will permit construction to proceed in an orderly fashion.

Permanent operating facilities, $16,000.—This amount will provide for the purchase of operating equipment to be used by construction forces during construction of the unit and which will later be used in the permanent operation of the unit.

Permanent camp, $34,000.—Provides for the purchase of right-of-way required for the permanent camp facilities listed below.

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Land and land rights	$34,000			$34,000	
3-bedroom houses (40)	800,000				$800,000
Permanent utilities and streets	365,000				365,000
Total	1,199,000	[1] $10,489	[1] $2,098	34,000	1,152,413

[1] Investigation costs not distributed to above items.

Temporary camp, $100,000.—This program will provide for the purchase of temporary transa homes and trailers.

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Transa houses and trailers	875,000			100,000	775,000
Streets, utilities, and miscellaneous	626,000				626,000
Total	1,501,000			100,000	1,401,000

Changes in total obligations

	Obligations
1960 congressional justification	(1)
1961 congressional justification	$68,581,550

[1] Not included in the fiscal year 1960 congressional justification.

Schedule of construction program fiscal years 1960 and 1961, Colorado River storage project, Curecanti unit, Colorado

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Blue Mesa Dam and Reservoir	$33,700,000	$250,000	$36,000	$1,250,000	$32,164,000
Blue Mesa powerplant and switchyard	10,260,000	77,000	11,000	----------	10,172,000
Morrow Point Dam and Reservoir	16,000,000	120,000	17,000	----------	15,863,000
Morrow Point powerplant and switchyard	7,760,000	60,000	9,000	----------	7,691,000
Permanent operating facilities	262,550	----------	----------	16,000	246,550
Permanent camp	1,199,000	10,489	2,098	34,000	1,152,413
Temporary camp	1,501,000	----------	----------	100,000	1,401,000
Service facilities, depreciation, and salvage	−1,501,000	----------	----------	----------	−1,501,000
Recreational development	3,268,450	----------	----------	----------	3,268,450
Consolidated expenditures and credits	−3,868,450	−517,489	−75,098	----------	−3,275,863
Total expenditures	68,581,550	----------	----------	1,400,000	67,181,550
Total obligations	68,581,550	----------	----------	1,400,000	67,181,550
Method of financing: Appropriations required	----------	----------	----------	1,400,000	67,181,550

Mr. RABAUT. The Curecanti Unit is a new start with a total Federal cost of $68,581,550.

Are you going to explain this project?

Mr. DOMINY. Yes, sir.

Mr. RABAUT. We will be glad to hear you.

Mr. DOMINY. The Curecanti unit is one of four authorized storage units of the Colorado River storage project. Its purpose is to provide regulation and storage of flood flows of the Gunnison River and the generation of hydroelectric power. Water stored, however, as in all other storage units of the project, will assist in complying with the terms of the Colorado River compact. In addition, it will provide benefits to recreation, fish and wildlife conservation, and irrigation in the upper Colorado River Basin.

The project data sheet figures are based on the integrated two-dam plan although the Blue Mesa facilities are all that are currently scheduled for construction.

The Blue Mesa and Morrow Point features of the unit will together develop 760 feet of the 1,000 feet of potential powerhead along a 40-mile reach of a deep canyon section of the Gunnison River below Gunnison, Colo., and above the Black Canyon of the Gunnison National Monument. Each of these two features consists of a dam and reservoir on the river, with a powerplant at the toe of the dam.

In addition, we are investigating a third possible dam to be included as part of this authorized unit which would be the Crystal Dam. At the moment we are asking for funds to start only the first dam, the Blue Mesa.

RECREATION FACILITIES

Mr. RABAUT. On this project, $3,268,450 of the benefits are allocated to recreation. Who is going to pay for the facilities that produce this benefit and of what will they consist?

Mr. DOMINY. Mr. Bennett, will you comment on that?

Mr. BENNETT. Under the authorizing act, Public Law 485, section 8 directs the Secretary to plan and carry out recreational facilities in connection with the development of the upper Colorado River. Under the provisions of that law, all costs under section 8 of the act are nonreimbursable.

Mr. Burnett, I believe, has the details on what is proposed there.

Mr. RABAUT. All right.

Mr. BURNETT. The National Park Service, is investigating this particular area, found a number of excellent recreational areas that could be developed. They anticipated visitor visitation of about 500,000 annually, and these funds are to provide facilities to take care of those visitors, not only——

Mr. RABAUT. What are these general basic facilities?

Mr. BURNETT. They are sanitary facilities, access roads, water supply for the particular areas, and probably boat-launching ramps at various places in these areas.

Mr. RABAUT. How many of those boat-launching ramps do you anticipate?

Mr. BURNETT. I don't have the exact number.

Mr. RABAUT. Suppose you just put it down in answer to the question I made here on the record.

Mr. BURNETT. Yes, sir.

Mr. RABAUT. Include in this the number of the different facilities. How much roadwork—access roads, type roads, and so forth.

(The information requested follows:)

RECREATION FACILITIES, CURECANTI UNIT

Recreational facilities tentatively estimated at $3,268,450 are planned for the Curecanti unit. The U.S. Forest Service estimates that development will be required to accommodate additional visitation to the national forest lands in the vicinity of the Curecanti unit caused by the construction and operation of the unit. The facilities comprising this development which will be financed from regular Forest Service appropriations are as follows:

Item	Quantity	Estimated cost
Roads	6.8 miles	$31,500
Campgrounds, picnic sites, and associated facilities (150 family units)	8 sites	108,800
Fencing recreation sites to meet minimum public safety requirements	6 sites	9,600
Additional administrative services required during construction period		1,600
Plus 15 percent of above for contingencies		15,150
Total, Forest Service program		166,650

The National Park Service recommends that public use and administration facilities be provided to accommodate the expected visitation to areas proposed to be set aside for use of the visiting public. The estimate for these facilities which are to be financed with funds other than the Upper Colorado River Basin fund is as follows:

Morrow Point development:	
Roads	$155,000
Boat launching ramp	30,000
Parking area	7,000
Subtotal, Morrow Point	192,000

Blue Mesa recreational development public use facilities

Work description	Center Point site	Lake Fork site	Sapinero site	Iola site	Total
Roads	$108,814	$148,073	$43,814	$77,425	$378,126
Parking areas	70,910	40,993	6,861	6,861	125,625
Trails	2,000	2,000	200	200	4,400
Boat-launching ramp	20,000	30,000	15,000	15,000	80,000
Marine development	80,000	99,500	20,000	20,000	219,500
Picnic area	61,250	53,150	13,47	13,470	141,340
Camping area	100,500	111,950			212,450
Beach and bathhouse	39,334	42,223			81,557
Water supply system	45,375	43,075	11,425	12,463	112,338
Sanitary system	45,738	46,250	14,000	16,525	122,513
Power distribution	5,000	8,000	3,400	8,400	24,800
Irrigation system	31,000	36,500	7,000	8,000	82,500
Site preparation	46,500	45,050	9,900	16,200	117,650
Signs	1,500	1,500	200	200	3,400
Total	657,921	708,264	145,270	194,744	1,706,199

Administration facilities

Work description	Center Point site	Lake Fork site	Total
Roads	$7,583	$5,846	$13,429
Parking area	10,075	4,014	14,089
Water supply system	6,024	5,038	11,062
Sanitary system	10,400	6,750	17,150
Power distribution	1,600	1,400	3,000
Telephone distribution	800	1,900	2,700
Irrigation system	4,500	3,000	7,500
Site preparation	16,500	7,500	24,000
Visitor center and administration building	70,000		70,000
Employee housing	108,000	43,200	151,200
Office and utility building	54,000	60,000	114,000
Total	289,482	138,648	428,130

Recapitulation: National Park Service:	
Morrow point facilities	$192,000
Blue Mesa public use	1,706,199
Administration	428,130
Subtotal	2,326,329
Contingencies	310,180
Total field cost	2,636,509
Engineering	465,291
Total National Park Service	3,101,800
Plus Forest Service development	166,650
Total Curecanti unit	3,268,450

The above estimates are based upon costs of similar facilities at previously constructed reservoirs. They are, therefore, tentative and subject to change after specific designs are prepared.

Mr. DOMINY. Of course, we will have to have an access road to get in there for construction purposes and we also have to relocate a substantial portion of the——

Mr. RABAUT. Will you use that same road—put it in such a way—your access road won't necessarily be just where you have the recreation facilities?

Mr. DOMINY. No. We will have to have an access road to get in there for the construction of the dam.

Mr. RABAUT. The access road wouldn't be charged to recreation?

Mr. DOMINY. Right, sir. Then we have to relocate a sizable portion of Highway 50 and that highway in its relocated position will be just above the periphery of the reservoir so that will give pretty good access, too, but we will identify any roads planned to be built strictly by reason of recreational use.

RIGHTS-OF-WAY

Mr. RABAUT. Your construction schedule shows no cost for land acquisitions or right-of-way. Who is providing for these things and what is their cost?

Mr. DOMINY. That is lumped into the general cost here, and hasn't been given to the committee as a separate item. We will be glad to break that out and——

Mr. RABAUT. Supply it for the record.

Mr. DOMINY. Yes, sir.

(The information follows:)

The program includes $500,000 for purchase of right-of-way in fiscal year 1961.

CURECANTI HIGHWAY RELOCATION IN COLORADO

Mr. RABAUT. Apparently you are paying Colorado to relocate Highway 50 around the reservoir. How much is this going to cost in total?

Mr. DOMINY. That is being negotiated now in general and, of course, when this money becomes available as proposed in the budget, we would firm up our arrangements with the State highway department. We don't have a final figure at this time, but we can give you our preliminary estimate on it, Mr. Chairman.

Mr. RABAUT. Now as to this highway, we would like you to tell us what type of a highway they have there now, as to its dimensions, width, and all that, and what type of a highway you anticipate putting in and how the cost of that will be allocated and what the lengths of the new highway will be in comparison to the highway in there before.

Mr. DOMINY. We will be glad to give you that in detail.

As you know, we hold our construction cost for relocated roads as nearly as possible to the cost of replacing a road of like character.

Mr. RABAUT. If the road is improved, of course, the difference will be borne by the State of Colorado, I imagine.

Mr. DOMINY. That is part of the negotiation; yes, sir.

Mr. RABAUT. You will supply the answer to those questions I asked, for the record.

Mr. DOMINY. Very well, sir.

(The information requested follows:)

Approximately 21 miles of U.S. Highway 50 must be relocated in connection with the construction of Blue Mesa Reservoir. Parts of the present highway are constructed to fairly modern standards. From Sapinero to east Elk Creek, the present alinement provides for a 60-mile-an-hour design speed with mostly moderate grades. From east Elk Creek to Coopers resort the existing highway is in poor condition with operating speeds in some sections of less than 40 miles per hour. The State of Colorado has planned to reconstruct this portion of U.S.

Highway 50 for several years but has delayed doing so because of the contemplated construction of the Curecanti unit.

The Colorado State Department of Highways will perform the engineering and accomplish the relocation by contract. Based on very preliminary information the Bureau's part of the cost of the relocation is estimated at approximately $7,080,000, including the engineering and surveys to be performed by the State. This total is, of course, subject to further engineering study and negotiation with the State. Under the proposed relocation arrangement the State will assume all costs in addition to those the Bureau is obligated to pay to construct the highway to superior standards which would involve a 24-foot roadway and 10-foot shoulders with a 60-mile-an-hour design speed and grades not to exceed 6 percent. The length of the relocated highway will depend on the location finally selected by the State. The preliminary estimates are based on a location which would add about 9 miles to the present highway.

Mr. CANNON. This is replacement of what character of road?

Mr. DOMINY. The type and quality of road that is there that has to be replaced. That has to be moved out of a reservoir area or a damsite.

Mr. CANNON. Complete replacement?

Mr. DOMINY. Complete replacement; yes, sir.

If they want a road to higher standards which is usually the case on a primary highway, we negotiate with them as to what part of that road is chargeable as a replacement cost and what part they will add to it to get the higher standards.

Mr. RABAUT. In this case, too, there is a matter of the length. Of course, you couldn't put it in the valley.

Mr. DOMINY. Usually on a replacement road we end up with a few extra miles because we have to get up around the reservoir.

HOUSING

Mr. RABAUT. Why will it be necessary to build 40 $20,000 three-bedroom permanent residences at this site and almost $1 million worth of roads and utilities?

Mr. DOMINY. Well, the roads, of course, I have already explained I think.

Mr. RABAUT. I thought maybe these roads were in connection with these houses.

Mr. DOMINY. Well, there may be a short stretch of road other than the access road identified as part of the permanent camps.

Mr. RABAUT. Well, they are called streets, utilities, and miscellaneous matters, so naturally we figured they were associated with the housing.

Mr. DOMINY. Our policy now—and I think this is fully in conformance with the views that have been expressed by this committee in the past few years—is to hold our construction camp facility of a permanent nature to fit the needs of what would be required during the operation of the project.

All other housing required during the construction period would be of a temporary nature and provided as cheaply as possible. We will have to have a permanent operating camp here of some size.

Mr. RABAUT. Evidently 40 families at least.

Mr. DOMINY. We are estimating that the headquarters for both Blue Mesa and Morrow Point Dam will require a community of 40 permanent houses, and an administration building, utilities, streets, and fire protection facilities.

The estimates are based on personnel requirements of 37 for the power facilities and 3 for the general administration of the camp and the automotive maintenance and matters of that type.

As the two dams are about 12 miles apart and the powerplant at Morrow Point will be automatically controlled from Blue Mesa, the headquarters camp would be located as near as feasible to the Blue Mesa Dam.

Mr. RABAUT. It operates around the clock so you will have to have personnel for that?

Mr. DOMINY. That is right, sir.

Mr. RABAUT. That is not too bad.

How much personnel—do you have any of these houses built for the recreation facilities? Any of these for management?

Mr. BENNETT. Houses for managing the recreational areas?

Mr. RABAUT. Well, we don't know. We are just asking the question, who is going to manage these facilities. You have to have personnel there.

Mr. DOMINY. That is not included in this estimate here, but we will give you, as you requested, a breakdown of the recreational expenditures that are contemplated.

Mr. RABAUT. Now, what is your estimate of the number of people that would be necessary to manage the recreation facilities there?

Mr. DOMINY. We would have to discuss that with the National Park Service.

Mr. RABAUT. Supply it for the record.

(The information requested follows:)

NUMBER OF RECREATION EMPLOYEES REQUIRED ON CURECANTI UNIT

Based on preliminary information the management of recreational facilities on the Curecanti unit will require about 9 employees working a total of approximately 2,300 man-days per year.

HOUSING

Mr. RABAUT. Now, how many transa houses and trailers are you buying with the $875,000 program for this purpose?

Mr. DOMINY. We have $875,000 in the total estimate for transa houses and trailers, and we have $100,000 of that scheduled for 1961.

Mr. RABAUT. The houses are permanent?

Mr. BENNETT. There are two combinations, Mr. Chairman. During the construction period when we need considerably more people than we do for permanent operating facilities, it is our plan to house the people who are there only for construction purposes in these transa houses and trailers.

Then at the same time we also build your permanent operating facilities which remain there for the personnel who operate the dam.

Mr. RABAUT. Are you creating kind of a campsite for these trailers with electrical power, sewage, and water?

Mr. BENNETT. We have to do that, particularly at a place like this that is 30 miles from the nearest town.

Mr. RABAUT. What do you do with these trailers when a thing like this is over? Do you move them?

Mr. DOMINY. We move them from place to place as long as they are still usable and that can be done more cheaply than salvaging them and replacing them, depending on how far we need to move them, and that sort of thing.

Mr. RABAUT. There is $875,000 in this program for these trailers; is that right?

Mr. DOMINY. For trailers and transa houses; yes, sir. We have two types of transa houses.

Mr. RABAUT. What do you mean by a transa house?

Mr. DOMINY. A transa house that we are using now, is a metal fabricated unit that is delivered to the job by truck, pulled overland on wheels, and erected right on the job.

Mr. RABAUT. How do they compare in price with the trailers?

Mr. DOMINY. They are quite a little more expensive than a trailer, but they give considerably more space and on a job that is going to run several years in a pretty cold climate they are much more satisfactory than a trailer.

Mr. RABAUT. And they can be taken apart again and used or sold?

Mr. DOMINY. They can be folded and hauled to a new site.

Mr. RABAUT. How many trailers are you going to have there and how many of these transa houses that constitute this expense of $875,000?

Mr. DOMINY. Let me give you a detailed statement on that, Mr. Chairman. The three-bedroom transa house up at Flaming Gorge cost between $11,000 and $12,000 delivered, erected, and ready for occupancy. They include refrigerator, plumbing, oil stove, and everything complete.

Mr. RABAUT. Do you have any record at all of what you got for some of them that you used heretofore and sold?

Mr. DOMINY. I don't recall whether we have disposed of any of our transa houses. We have been using them for a fairly short space of time. They are a fairly new development.

Mr. RABAUT. Well, it would be good now to know of what value they are as a reclaimed house after we are through with them.

Mr. DOMINY. Let us give you a statement as to our experience with them to date.

Mr. RABAUT. We might get a policy on that.

(The information requested follows:)

Transa houses and trailers estimated to be needed in temporary camp

	Number	Total cost	Estimated value at end of 9-year construction period
Transa houses:			
3-bedroom [1]	40	$500,000	$120,000
2-bedroom [2]	50	300,000	90,000
Trailers	20	75,000	20,000
Total		875,000	230,000

[1] Approximately 1,000 square feet of floor space.
[2] Approximately 500 square feet of floor space.

NOTE.—Costs given are inplace costs including transportation from manufacturer's plant and utility connections to main lines in street.

Mr. RABAUT. How many trailers were there? You are going to supply that for the record?

Mr. DOMINY. Yes.

Mr. RABAUT. Are these camp and permanent city facilities reimbursable?

Mr. DOMINY. Yes, sir. It is all part of the project cost.

REPAYMENT OF INVESTMENT

Mr. RABAUT. How long is it going to take to repay this investment with only 100,000 kilowatts installed capacity?

Mr. BENNETT. Mr. Chairman, this is part of the total Upper Colorado River project. Under the authorizing act all power costs, including those at Curecanti and at Glen Canyon and Flaming Gorge, are considered as one total investment and the total revenues from the system are applied to the total cost. Under the authorizing act all of these costs must be paid out within a 50-year period from the time each separable feature becomes revenue producing and that, of course, is amortized with interest under the provisions of the act.

Mr. RABAUT. Could you break this one up separately? How long will it take to repay it?

Mr. DOMINY. Applying the so-called system revenues against this one as a unit?

Mr. RABAUT. Yes.

Mr. DOMINY. That could be done, yes, sir.

Mr. RABAUT. Suppose you supply it. Is it a big job?

Mr. DOMINY. We can do that for Blue Mesa and Morrow Point operating together. Even though we are proposing the building of only one now, the economy of the unit is based on these two dams and the two powerplants, and we will supply that payout for the Curecanti unit.

Mr. RABAUT. That is the two plants together. That is what we want because they are tied together?

Mr. DOMINY. Yes, sir.

(The information requested follows:)

REPAYMENT OF COMMERCIAL POWER INVESTMENT—CURECANTI UNIT

Studies indicate that repayment of the commercial power investment in the Blue Mesa and Morrow Point facilities of the Curecanti unit plus appropriate assignment of Transmission Division costs from revenues accruing from the sale of energy produced at Curecanti unit powerplants only would be impossible at an interest rate of 4⅛ percent, for the reason that operation, maintenance, and replacement costs and interest charges would exceed gross revenues. Repayment of this obligation with the same revenues at an interest rate of 2⅞ percent (this being the rate applicable to commercial power investments in the Glen Canyon and Flaming Gorge units) would require 83 years with an additional 2 years needed to repay the irrigation allocation in Curecanti unit without interest.

Assuming generation and costs as identified above, an average power rate of about 8.5 mills per kilowatt-hour of firm energy would be required to repay the commercial power investment at 4⅛ percent interest and repay the irrigation allocation without interest within 50 years. At a rate of 2⅞ percent the required rate per kilowatt-hour of firm energy to repay the Curecanti unit commercial power investment, and thereafter repay irrigation costs interest free, would be about 6.9.

Mr. RABAUT. Does the fact that you are currently planning to begin only the Blue Mesa Dam and Reservoir mean that the Morrow Point powerplant is cut out of the picture?

Mr. DOMINY. No, sir.

Mr. RABAUT. You might explain that decision.

Mr. DOMINY. Even if we were authorized now by appropriations from Congress to go ahead with both of them, we would still build the Blue Mesa Dam first and the construction program would involve using the same camp facilities and we would hold our overhead down by building one at a time in any event.

Mr. RABAUT. You are to be commended for that. That is fine.

Are there any questions on that?

Mr. PILLION. On the whole project, yes, Mr. Chairman.

Mr. RABAUT. Mr. Cannon, have you any questions there?

Mr. CANNON. No questions.

Mr. RABAUT. Mr. Evins.

STATUS OF COLORADO RIVER STORAGE PROJECT

Mr. EVINS. What is the status of your upper Colorado River storage project? How is it advancing? How are you coming along? Are you slowing it down? Are you going ahead? How far along are you? What is the status?

Mr. DOMINY. I think we are really doing quite well. We are ahead of schedule on Navajo Dam. We are right on schedule at Glen Canyon in spite of a strike that lasted for 6 months, but in spite of that we are to all practical purposes right on schedule. We will be placing the first concrete in the lower reaches of the canyon in June.

We expect to have the dam up to where the waters can start to be stored behind it in November 1962. This is right on the schedule that we originally contemplated.

At Flaming Gorge the contractor has been a little behind for a while with some of his work, but he basically, too, is approximately on schedule.

Now, in connection with the required decisions with regard to the marketing area for the power and the transmission line facilities, we are making very substantial progress in all of the data gathering and discussions with the utilities and the preference customers in the entire area.

Mr. EVINS. That leads me to my next question. When these projects are completed, are you going to provide power to the preference customers or are the private utilities going to come at the bus bar and take the power? What are your plans regarding transmission lines and who is to receive the power and what percentages?

Mr. DOMINY. We will be coming to the transmission portion of this a little later but if the chairman wishes us to go into that in detail now——

Mr. RABAUT. Could you wait until we come to it?

Mr. EVINS. I thought we were finishing up.

Mr. RABAUT. We are just starting on this whole area and we haven't come to the transmission.

If you want to go into it now, it is all right, but you are ahead of time.

Mr. EVINS. Just one question: What are your plans—to turn it over at the bus bar or allocate it to the preference customers?

Mr. DOMINY. Our plans are to comply strictly with the law with regard to marketing the Colorado storage project power to preference customers and to design and construct such transmission facilities as would be required in an orderly marketing program.

Mr. EVINS. That is all, Mr. Chairman; thank you.

Mr. RABAUT. Mr. Boland?

Mr. BOLAND. No questions.

Mr. RABAUT. Mr. Taber?

CURECANTI UNIT, COLORADO

IRRIGATION

Mr. TABER. This is a new project, isn't it?

Mr. DOMINY. Curecanti is a new start this year, Mr. Taber; yes, sir.

Mr. TABER. Your project data sheet shows $2,793,000 allocated to irrigation. What is the irrigation?

Mr. DOMINY. This is the portion of the Curecanti storage that contributes to the Colorado storage project irrigation by helping provide the control of water required to satisfy the compact with the lower basin States and also to hold the water in the higher reaches of the basin for diversion to irrigation uses between Curecanti and Glen Canyon.

Mr. TABER. You state that this irrigation allocation is not to be reimbursable. Why is that?

Mr. DOMINY. As a matter of fact, none of the water for irrigation will be used directly from Curecanti. It is a general irrigation aid that is given here and I would like Mr. Bennett to comment further on that.

Mr. BENNETT. Under the authorizing act, Mr. Taber, the irrigation allocation of the storage units, of which this is one, is to be paid for out of the power revenues of the project and it is paid for within a 50-year period under the act.

Mr. TABER. How can it be repaid unless there is electricity enough produced to repay it?

Mr. BENNETT. It is repaid out of the power revenues of the system.

Mr. TABER. If you don't get the power revenues it isn't repaid?

Mr. BENNETT. Well, under the act, of course, we are required to set the revenues at such a level as will accomplish the requirements of the act.

Mr. TABER. You can't tell anything about whether you have a market for the power or not?

Mr. BENNETT. There is no question in our mind about a market. We have already done considerable work on that and our studies, together with the Federal Power Commission studies and the studies by the preference customers themselves indicate that they can take full use of all of the power produced just as fast as we can get it on the line.

RECREATION FACILITIES

Mr. TABER. You have $3¼ million for recreation. I don't know whether there is anything for fish and wildlife, is there?

Mr. BENNETT. There is no allocation here for fish and wildlife.

Mr. TABER. But there is $3¼ million or a little more, for recreation?

Mr. BENNETT. That is correct.

Mr. TABER. Why would we relieve the folks who are going to get power out of this from the obligation of paying for that part of the cost? It would not appear to me to be a proper procedure.

Mr. BENNETT. Under Section 8 of the authorizing act, Mr. Taber, the Secretary is directed to plan and construct recreational facilities on these upper Colorado River projects and that such costs shall be nonreimbursable. That is a provision of the authorizing act.

Mr. TABER. Frankly, I can't see starting another park and irrigation project with conditions the way they are.

Mr. DOMINY. Of course, as I said a moment ago, Mr. Taber, in this case this is one of the primary storage and power producing units and does not as a result of the construction of this dam, bring in directly nor at this time even indirectly any added lands for irrigation. Mr. Taber, ultimately storage and power revenues provided here will make it possible to add irrigation but as I say, this dam itself does not bring about immediately irrigation of new lands.

Mr. TABER. There is no irrigation at all?

Mr. DOMINY. Not directly.

Mr. TABER. In the initial, direct construction.

Mr. DOMINY. Not directly, no, sir.

Mr. TABER. That is all I have.

Mr. PILLION. Mr. Commissioner, this is one of the choice projects in the upper Colorado project.

Mr. DOMINY. Yes, sir.

Mr. PILLION. How many are now under construction?

Mr. DOMINY. Glen Canyon in Arizona; Flaming Gorge in Utah; and Navajo in New Mexico.

Mr. PILLION. And these are all under construction?

Mr. DOMINY. Yes, sir.

Mr. PILLION. This would be the fourth dam project under construction?

Mr. DOMINY. It would be the fourth of the storage units; yes, sir.

FEATURES OF CURECANTI UNIT

Curecanti, Mr. Pillion, is actually two construction projects, Blue Mesa and Morrow Point, and possibly a third one later. The Congress authorized this particular storage unit subject to a further report from the Secretary, substituting a two- or three-dam plan for the larger dams originally considered that would have brought water back into the edge of the city of Gunnison. This was the original proposal. We have brought Blue Mesa and Morrow Point Dams to the point where feasibility was established pursuant to the requirements of the Colorado Storage Act. That report was made available to the President and the Congress which completed the authorization.

In submitting that report for the two dams it was pointed out that the study of the third one had not yet been completed and that if it fell within the feasibility range that it too might be recommended as part of Curecanti.

Mr. PILLION. I see. The two dams that now constitute Curecanti project will cost somewhere in the neighborhood of $70 million.

Mr. DOMINY. Yes, sir.

Mr. PILLION. And the third one is the Crystal Dam not yet worked out for feasibility and what is the expected cost of that, very roughly?

Mr. BURNETT. We are just working up that information now. We won't have it until next year.

Mr. PILLION. Will that be in the neighborhood of the same cost as these two, roughly about $35 million?

Mr. BURNETT. It will probably fall within a range of $30 and $35 million; yes, sir.

Mr. PILLION. Now the Glen Canyon is also a hydro installation besides storage?

Mr. DOMINY. Yes, sir.

Mr. PILLION. How much kilowatt capacity will that have?

Mr. BENNETT. 900,000 kilowatts.

Mr. PILLION. How much will Flaming Gorge have?

Mr. BENNETT. 108,000 kilowatts.

Mr. PILLION. That is a million-kilowatt capacity right there?

Mr. BENNETT. Yes, sir.

Mr. PILLION. How much will Navaho have?

Mr. BENNETT. Nothing.

Mr. PILLION. That is purely storage?

Mr. BENNETT. Yes, sir.

Mr. PILLION. That is the one that supplies irrigation water for the Navaho lands at a cost of $150,000 or $200,000 per Navaho family, as I recollect.

Now the flood control part of the Curecanti is very slight and only amounts to something like $70,000 or $80,000 in the whole project; is that right?

Mr. BENNETT. About a million dollars.

Mr. PILLION. So it is very incidental to the situation?

Mr. BENNETT. That is right.

Mr. PILLION. You are not going to build this purely for flood control nor as flood control being the primary objective; is that right?

Mr. BENNETT. That is correct.

Mr. PILLION. Recreation is a very incidental part of this, too, isn't it?

Mr. BENNETT. Yes, sir; relatively speaking.

Mr. PILLION. Now how do you arrive at a benefit of $3 million to the U.S. taxpayers on this project for recreation? How do you figure out that this is worth $3 million to the taxpayers? What is your basis for doing that?

Mr. BENNETT. The basis for this is developed by the National Park Service in which they estimate the number of average annual visitors they expect for the area and this comes to about 500,000 annually and then they figure the costs of the basic facilities necessary to take care of them.

Mr. PILLION. And I suppose that, like most of the benefit-cost ratio things, it is purely a question of estimates and could very well be $1 million or $5 million, depending upon how you look at it.

Mr. DOMINY. It is based on the number of visitor-days and the economic value of the expenditures which they make in terms of their stay in fishing equipment, boating equipment, and all that sort of thing.

Mr. PILLON. Now this is a sparsely populated area; is it not?

Mr. DOMINY. It is beautiful mountain country that in the summertime attracts tremendous numbers of people. There are a number of permanent dude ranches and resorts of that type in this genral area.

Mr. PILLION. But relatively it is a sparsely populated area?

Mr. DOMINY. Yes; on a permanent population basis.

Mr. PILLION. Now in this you are bringing in under present construction contracts 1-million-kilowatt capacity within a few years; is that true?

Mr. DOMINY. Yes, sir.

POWER

Mr. PILLION. That is an awful lot of power.

Why is the additional power to be generated from Curecanti necessary at that particular time? Or all about the same time, 5 or 6 years from now?

Mr. BENNETT. I pointed out a little earlier, Mr. Pillion, the surveys which the Federal Power Commission has made, which we have made and which the potential customers themselves have made. They indicate that by 1970, which is even a little bit prior to the time we can make full generation, their loads will have grown to the point where they can take every kilowatt output of these plants, including Curecanti. That by 1980, their loads have grown beyond the ability of these plants to take care of the load. So in our view there is ample need for this power within these areas.

Mr. PILLION. May I ask this: Isn't it true that the present suppliers of power and electricity in that area will have to build as they go along, this power, up until 10 years from now? You are certainly not going to have a situation where you are not going to have power between now and 1970. And all of a sudden in comes a rush of power from these hydro plants and you will then be able to supply power in this measure. In this amount, all of a sudden to the customers. Is it true that private industries will be building up until that time and when this comes in it will replace the power installations of the power companies?

Mr. BENNETT. Many of these preference customers have some generating facilities of their own. That has been taken into account in arriving at these market studies.

I think the main point, Mr. Pillion, the Congress authorized this project for the purpose of developing this particular area—the whole Upper Colorado River Basin. And part of the way in which they wanted that done was for the provision of power, which would aid in the development of the entire area.

Mr. PILLION. Naturally, what is going to happen is that many of these power distribution centers now will take this power and abandon their thermal units or other installations that are producing power now.

Mr. BENNETT. I do not think they will abandon any of their present installations. It could well mean that those without the project who might have to construct additional thermal units would not construct those additional thermal units until after they had made use of whatever their allotment might be of the hydropower.

Mr. PILLION. What is the kilowatt-hour cost here of power estimated for the Curecanti?

Mr. BENNETT. Do you mean the cost per kilowatt installed, for Curecanti?

Mr. PILLION. Yes. Per kilowatt-hour. How many mills?

Mr. BENNETT. We do not have a figure yet on what the power rates will be for the upper basin project. However, the last analysis we made we used an average rate of 6 mills per kilowatt-hour.

Mr. PILLION. What will be the cost in this project of the kilowatt-hour?

Mr. BENNETT. Of this one alone?

Mr. PILLION. Yes.

Mr. BENNETT. We indicated we will put that in the record. We have not analyzed Curecanti as an isolated unit, but only as a part of the project.

Mr. PILLION. It could be 7½ or 8 mills, couldn't it?

Mr. BENNETT. Certainly it could, but this is not unusual at all. It is common practice among all people in the power business that some plants produce at a cost higher and some are lower than the average rate at which you sell the power.

Mr. PILLION. If it was 7 or 8 or 9 mills then it raises the average cost of power for those integrated into the area?

Mr. BENNETT. It is established on the basis that this is a part of it.

Mr. PILLION. It does raise it, in effect, does it not?

Mr. BENNETT. It could have a rather minor significance on it but you are correct, if you set a rate without it, then with it you would have some slight increase.

Mr. PILLION. That is right. Now the comparable steam and thermal cost would be what in this area?

Mr. BENNETT. It varies. We have analyzed that rather carefully throughout different areas of the upper basin and it varies, of course, depending principally upon the location in relation to fuel sources.

Mr. PILLION. Would you say 6 mills per kilowatt-hour would be right?

Mr. BENNETT. That would be quite a bit too low. The average over the upper basin is about 7½ mills. Now it varies, as I say, in different spots.

Mr. PILLION. But the new ones would be on the basis of 6 and 6½?

Mr. BENNETT. No, these are new ones. It is about 7½ average over the upper basin.

Now some of the areas where they are further away from the fuel location points are higher than that.

Mr. PILLION. I see. Well, now, let's assume we had 7 mills power for thermal and we had 7 mills power for this hydropower. Wouldn't it be preferable economically to take the thermal power because the cost per unit of capacity construction would be a lot less for thermal than for hydro? Wouldn't a businessman ordinarily select a thermal unit rather than a hydro where his cost would only be, say, half?

Mr. BENNETT. Only if he had in mind initial construction.

Now, actually, there is no question about it, that on an installed capacity cost, the construction cost of thermal is cheaper than hydro. But when you take into account your annual operating costs, almost invariably hydro comes out cheaper, on an annual basis.

Mr. PILLION. That is providing you have a rate of interest at a lot less than market. That you have a 3 percent interest rate?

Mr. BENNETT. No, this is on a comparable interest basis.

BENEFIT-COST RATIO

Mr. PILLION. Now I note from the record here of House Document 201, 86th Congress, that the benefit-cost ratio for this project for power alone, assuming that we forgot about flood control and recreation, is 0.92 to 1. That is true, isn't it? I refer to page 33 of this document. It is less than 1 to 1?

Mr. BENNETT. Power taken alone does show here, on a 50-year period of analysis.

Mr. PILLION. So if we had no need for the flood control and had no real need for the recreational center——

Mr. TABER. Or the reclamation.

Mr. PILLION. Or the reclamation or the irrigation features of this, then you would have a project here that is less than 1 to 1.

Mr. BENNETT. You cannot reach that conclusion, sir. If you did not have these other functions in here, then the costs which go into this ratio would not be the same costs. This is the ratio of each function in a multiple-purpose project.

Mr. PILLION. I understand.

Mr. BENNETT. If you didn't have your other functions you would have different figures.

Mr. PILLION. I understand. If we didn't consider those things to be necessary, then you would have for power along a 0.92 to 1 benefit-cost ratio based on a 50-year period of analysis.

Mr. BENNETT. The point I am making, again, Mr. Pillion, is if you did not have the other functions in your multiple-purpose project you would not come up with this particular ratio shown here. It would be something else. I don't know what it would be.

Mr. PILLION. Now, then; the authorizing act here calls for repayments on a 50-year basis?

Mr. BENNETT. Yes, sir.

Mr. PILLION. Then why do you figure this on a 100-year repayment basis instead of 50 years?

Mr. BENNETT. The act provides the power features shall be paid on a 50-year period, on the basis of separable features. That has no relationship to the manner and method in which you compute benefits or benefit-cost ratios.

Benefits we do compute on a 100-year basis. We do think, as a matter of fact, we are conservative in limiting that to 100 years. The benefits from these projects go on and on and on, long past the repayment period.

Mr. PILLION. Do not your rules and regulations provide for figuring these on a 50-year basis? The Bureau of Reclamation rules and regulations?

Mr. BENNETT. They utilize the 100-year period. At the direction of the Bureau of the Budget Circular A–47 we also show a computation for a 50-year period. But that is not, in our judgment, a logical computation because associated with it are the costs that are in there for a project which operates practically in perpetuity.

If you wanted a true 50-year benefit-cost ratio you should have a project which has costs in it which, at the end of a 50-year period, has the project fall apart.

In our judgment the 50-year benefit-cost ratio has little meaning.

Mr. PILLION. Let me read you something here from the hearings on page 93 of the same House Document No. 201, 86th Congress, for whatever comment you may wish to make about it.

EFFECT ON FISH AND WILDLIFE RESOURCES

In view of the extremely harmful effects that construction will have on fish and wildlife resources and lack of feasible means for mitigating these anticipated losses, the Fish and Wildlife Service recommends that investigation of alternate sites be conducted.

So instead of benefits here, there seems to be damages here to fish and wildlife, is that true, Mr. Bennett?

Mr. DOMINY. There are damages to natural stream fishing which has been extremely good on the canyons of the Gunnison River for a relatively small number of people. And this is a loss to a natural setting that has gained pretty wide fame as a beautiful, fast-water area with limited access.

Now, with two dams in there, the number of people who will be provided the opportunity to fish will be greatly increased. It will be a different kind of fishing, however. Not the kind that the fast-water fishermen like.

Mr. PILLION. I assume that is already included in the benefits under the recreation, but the harmful effects are not deducted, are they? In other words, where you have a beneficial effect, you always add that to the value of the project or the supposed value of the project.

But when there are any damages, you don't subtract it. Now why are not damages to fish and wildlife evaluated and deducted? Why isn't that done?

Mr. DOMINY. We do that normally.

Mr. PILLION. It hasn't been done here.

Mr. BENNETT. We do this, Mr. Pillion: When there are truly measurable damages, those damages are deducted. For instance, if there is irrigable land within a reservoir that is taken out of production, that is considered as a loss and is taken out in the calculation. But in this particular case, there was indeed a question. The judgment of most people, including the State of Colorado who went into this matter with great thoroughness, was that the benefits from providing an area where the public could get to it, rather than these little private fishing areas, far exceeded the damages which are indicated from the loss of the fast-water fishing.

So we just simply didn't take in either the losses or the benefits in this case.

Mr. PILLION. I don't see anything vague about this statement. It says, "In view of the extremely harmful effects construction will have on fish and wildlife resources."

Now, there is nothing vague about that. Maybe the amount of harm and the measurable amount of harm may be vague, but there is nothing vague about that language.

Mr. DOMINY. I think that statement supports very clearly an observation you made a moment ago. That statement takes into account the damage to the fast-water fishing without taking into credit the value of the type of fishing resource that would be there as a replacement.

Mr. BENNETT. You are reading from the report of the regional director of the Fish and Wildlife Service. Those views were not upheld by the head of that particular agency.

Mr. DOMINY. Nor were they supported by the Colorado State Game and Fish Commission, nor the Governor of the State.

Mr. PILLION. May I ask this: There is no pressing immediate prospect of any great damage that could arise from the possibility that this Curecanti construction project would not start in construction this year, is there?

Mr. DOMINY. No, I think I would have to answer that in the negative. It wouldn't do any serious harm to the project and its feasibility if this were delayed for a brief time.

Mr. PILLION. That is all, Mr. Chairman.

RIVER POLLUTION

Mr. CANNON. Has there been any appreciable water pollution on the Colorado River from its source down to Glen Canyon Dam?

Mr. DOMINY. Well, Mr. Chairman, this is an area of fairly sparse centers of population. Some towns along the Green River and upper Colorado, probably contribute a little to pollution in the upper reaches of the system. In the remainder of that river system down Glen Canyon there are just very few populated areas that could be contributing substantially to pollution even if they were dumping raw sewage into it.

Mr. BENNETT. Or even industrial wastes.

Mr. CANNON. Water reaches this reservoir at Glen Canyon Dam pretty much unadulterated.

Mr. BENNETT. It is quite salty, by the way, but in terms of sewage outflow or industrial wastes, or things of that kind, there are practically none.

Mr. DOMINY. I think with the uranium operations that are quite widespread in the Colorado Basin now, there could be some risk of pollution from industrial wastes of that type, because this area has become quite a center for the uranium industry and there is a great deal of uranimum mining on the Colorado River drainage area.

I think this is something that ought to be carefully observed and not let it get out of control. But I don't think you would consider this a stream that is in any way polluted in the ordinary sense of the word at this point.

Mr. BENNETT. As a matter of fact, at this particular point you can drink right out of the river with perfect safety.

Mr. TABER. I am wondering what the present power rates are in the territory of the generators that are projected in this dam.

Mr. BENNETT. Mr. Taber, we do not have the rate schedules at hand, but we can get them.

Mr. TABER. I don't see how you can do your figuring on the job unless you have them.

Mr. BENNETT. We simply don't have them here with us.

Mr. TABER. I suppose we are expected to pass on an appropriation without having any of the basis to work on?

Mr. DOMINY. Mr. Bennett can give you some general ideas of the rate structures that prevail in various parts of this market area, yes, sir.

Mr. BENNETT. The present rates within the area are varying, I would say now, depending on the particular location from—some areas as low as 6½ and other areas above a cent per kilowatt-hour.

Mr. TABER. At the present time?

Mr. BENNETT. At the present time, yes.

Mr. TABER. Depending upon access to fuel?

Mr. BENNETT. Yes.

Mr. TABER. And what is most of that?

I am interested in what the rates are in effect at the present time in that territory?

Mr. BENNETT. To the consumer.

Mr. TABER. If we are going to compare the rates with the rates that are used to figure out what Reclamation would charge, we ought to have the price at the bus bar, because that would be comparable. It is the only way it could be done.

Mr. BENNETT. Our rate, Mr. Taber, will not be at the bus bar; it will be at delivery points.

Mr. TABER. Do you mean there will be transmission lines?

Mr. DOMINY. Either transmission lines or wheeling arrangements to use lines constructed by utility companies, but the rate we are discussing would be at delivery points.

Mr. CANNON. To the consumer?

Mr. DOMINY. No, to the preference customer, at a load center. It would not be to the individual house or individual factory or anything like that.

Mr. TABER. But we ought to know what the rates are now for that same sort of service.

Mr. DOMINY. That is what Mr. Bennett gave you. It varies rather widely depending on distance from the source of fuel and the source of fuel.

Mr. TABER. Did you go into it deep enough to get an average of what that would be?

Mr. BENNETT. The average over the upper basin is about 7½ mills.

Mr. TABER. At the present time?

Mr. BENNETT. At the present time.

Mr. TABER. How do you make out a case for additional power when the rates will not be changed?

Mr. DOMINY. We expect to have a rate at delivery points from the Glen Canyon power system of close to 6 mills.

Mr. TABER. I understood you folks to say to Mr. Pillion that these rates were all on a—they would average out to about 7½ mills.

Mr. DOMINY. That was the average of present rates under present circumstances, sir.

Mr. PILLION. Will the gentleman yield?

Mr. TABER. Yes. I didn't understand it that way.

Mr. PILLION. The answer was different. The answer was for the power rates including Glen Canyon. I was talking about Curecanti.

Now, the answer to you, Mr. Taber, was not the power rate of Curecanti; the answer to you was Glen Canyon. Now Curecanti could be 7 or 8 mills, couldn't it, Mr. Bennett?

Mr. BENNETT. The question, as I understood Mr. Taber to ask it, was present rates within the area coming from existing powerplants.

Mr. PILLION. That is how much?

Mr. BENNETT. That average is about 7½ mills.

Mr. PILLION. Does that include taxes?

Mr. BENNETT. Yes.

Now, at the present time, the rate which we are using for feasibility purposes in the Upper Colorado River storage project is 6 mills. When we finally get our costs together and make our rate structure, it will be near that—probably a little more.

Mr. PILLION. Without taxes.

Mr. BENNETT. Without taxes is correct. Under the provisions of the authorizing act. That rate structure will comprehend inclusion of Curecanti.

Mr. PILLION. Now, Curecanti alone is how much?

Mr. BENNETT. If you take Curecanti alone and analyze that as an independent unit—we said we would have to put the figure in the record. Right now I don't know what it will be, but it will be more than the system average rate, obviously.

Mr. PILLION. Thank you very much.

INTEREST CHARGES

Mr. RABAUT. I note here that the General Accounting Office has made a complaint that they don't think all the interest charges are being added to this project. There is a citation of it here that I thought ought to be brought to your attention.

The Bureau's computations of interest during construction have been made in accordance with instruction issued on May 10, 1957, by the Commissioner of Reclamation. These instructions provide that the following costs will be excluded from the base used to compute interest, or in construction:

1. Significant nonappropriation costs or property transfers.

2. General investigation costs financed from (*a*) Upper Colorado River Basin fund, (*b*) Colorado River development fund, and (*c*) reclamation fund.

3. Cost of materials and supplies, inventory.

4. Contract costs for fabrication of machinery and equipment prior to availability for use at the site.

5. Unpaid costs—contract holdbacks.

6. Contributions in aid of construction including fund transfers from other governmental agencies.

7. Payment to contractors for erections of special plant and equipment until recovered through reduction of contractors' earnings.

8. Cost of construction facilities including general property until depreciation expense is recorded on such assets.

What has the Bureau done about this?

Mr. DOMINY. We are making a review of this General Accounting Office report and we will take into account their observations and to the extent that we don't have legitimate defense for the manner in which we have been operating we will adjust our practices.

Mr. RABAUT. In other words, the GAO feels the interest should be charged on these moneys and should be a part of the overall cost of the project.

According to their figures, the significance of the amounts improperly excluded from the Bureau's interest computations is indicated by comparing the cost of $54,274,503—of which about 91 percent was allocated to interest-bearing purposes—used in the Bureau's fiscal year 1959 computations with the exclusions of $26,551,479, before allocation to interest-bearing and non-interest-bearing purposes, the GAO considers improper.

Mr. BENNET. May I comment, Mr. Chairman, that the authorizing act does require the computation of interest during construction on this particular project.

The point at issue here is what are the items on which you do make the computation, and at what point in time.

Mr. RABAUT. That is the complaint. They are claiming that there aren't the full number of items included. Don't you think they are correct in some of these citations here that they make?

Mr. BENNETT. Some of these items are matters of judgment really, whether they should be in or out and that is what we are reviewing now.

Mr. RABAUT. We want as many judgments as possible to be in the direction of assistance to the Government. This would materially affect the benefit-cost ratio, wouldn't it?

Mr. BENNETT. No, this could affect only the payout and the rate at which you sell your power. It would not affect the benefit-cost ratio.

Mr. RABAUT. It would affect your power rate?

Mr. BENNETT. It could affect the power rate measurably; perhaps not.

Mr. RABAUT. It would be about 9 percent of the power rate.

Mr. DOMINY. They state that they are in agreement with us on some of these.

Mr. RABAUT. They say "the exclusions of 26 billion——"

Mr. DOMINY. The sentence immediately below this tabulation reads: "We believe that the exclusion of items 1, 2–A, 2–C, 3, 4, 7, and 8 above—" they disagree with our treatment of those items but they do agree with the others.

Now, we are going to review all this and, as I say, to the extent that we think we have legitimate and sound accounting and financial reasons to back up the manner in which we are doing it, we expect to argue with them about it, but if we agree with them after we have reviewed it we will change our practice.

Mr. RABAUT. And the committee will be informed of the outcome.

Mr. DOMINY. We will certainly inform the committee; yes, sir.

FLAMING GORGE UNIT, UTAH-WYOMING

Mr. RABAUT. Now, we will take up Flaming Gorge unit, $12 million. Insert pages 410 through 415.

(The pages referred to are as follows:)

PF - 65
(7 - 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Colorado River Basin -- In Daggett County Utah, and Sweetwater County, Wyoming. The dam is located approximately 6 miles south of Utah-Wyoming border.

AUTHORIZATION: Act of April 11, 1956 | B/C RATIO 1.3 | Date Dec. 1959

LAND CERTIFICATION: None Required | DEFINITE PLAN REPORT: None Required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 66,447,000	Appropriations to June 30, 19 59	$ 16,328,335
Net Property and Other Transfers	1,253,000	Appropriations for F. Y. 1960	12,675,000
Cash Advances--Non-Federal		Appropriations to-Date	29,003,335
Adjustment	1/ 3,390,000	Initial Underfinancing F. Y. 19 60	
		Appropriations Required for F. Y. 19 61	12,000,000
Total to be Allocated	$ 73,090,000	Balance to Complete after F.Y. 1961	$ 25,443,665

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 14,496,917	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power 1/	55,398,000	Amount Repaid by Power 1/	69,893,917	Repayment of Investment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$
Flood & Nav.				By Power Revenues	
Recreation	3,109,000			By M & I Water Users	
CRDF Invest.	87,083	Non - Reimbursable 2/	3,196,083	Payment Capacity per Acre	$
Total	$ 73,090,000	Total	$ 73,090,000	Annual Charges: O. & M.	$
				Construction	
				Total	$

STATUS OF REPAYMENT CONTRACT:

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Flaming Gorge Dam & Reservoir	3,789,000AF	18	6-64				
Flaming Gorge Powerplant and Switchyard	108,000KW	10	6-64				
General Property		24	6-64				

Acreage Full Supply: --- | Supplemental Supply: --- | Total Acres: --- | Power kw: 108,000

Region	Date	Project and State
4	1-18-60	Colorado River Storage Project, Flaming Gorge Unit, Utah-Wyoming

BR-410

1 Includes $3,390,000 reimbursable interest during construction.
2 Includes $3,109,000 recreation cost which is to be financed from other than Upper Colorado River basin fund and $87,083 CRDF
3 Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$14,496,000	$14,495,917
Power	55,398,000	55,398,000
Recreation	1,222,000	3,109,000
Colorado River development fund	87,000	87,083
Total to be allocated	71,203,000	73,090,000

Total to be allocated has been increased by $1,887,000 for increase in recreation cost to be incurred under section 8 of the act of April 11, 1956, which is to be financed from sources other than the Upper Colorado River Basin fund. Colorado River development fund has been increased by $83 as the result of using actual rather than round-off figures with a corresponding adjustment in the irrigation allocation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.20.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.22.

JUSTIFICATION

Description.—The primary purposes of the Flaming Gorge unit are the regulation and storage of floodflows of the Green River and the generation of hydroelectric power. Water stored, as in the other storage units of the project, will assist in complying with the terms of the Colorado River compact and will, by exchange, furnish an irrigation supply for the participating projects in the upper basin States. In addition, there will be benefits from fish and wildlife conservation and recreational facilities.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed for fiscal year 1961

Flaming Gorge Dam and Reservoir, $11,417,495.—Provides for completion of all land acquisition, and completion of all highway and grave relocations; the continuation of concrete placing operations in the dam; the continuation of reservoir clearing in the lower reach of the reservoir; the procurement of Government furnished equipment; and the start of reservoir clearing in the upper reach of the reservoir.

Flaming Gorge powerplant and switchyard, $4,053,000.—Provides for continuation of work on the switchyard and the powerplant. It also provides for continuation of procurement of Government furnished materials and equipment for the powerplant and switchyard. Orders will be placed during the year for generators and governors, a 65-ton gantry crane, and the circuit breakers.

Service facilities, —$512,000.—Represents miscellaneous equipment purchases for community, office, shop, and warehouse which are more than offset by charges from prior years to be distributed to project features on a use basis during the year. Of the $5 million total estimate for service facilities, $4,652,406 has been used to June 30, 1959, $241,190 is scheduled for use in fiscal year 1960, $32,000 in fiscal year 1961, and $74,404 in subsequent years. The following table shows the details of these amounts:

Item	Total estimate	Total to June 30, 1959	Fiscal year 1960	Fiscal year 1961	Subsequent years
Permanent and temporary housing, streets, water, sewage, and electrical distribution systems	$2,925,000	$2,899,390	$25,610		
Temporary field offices	5,884	5,884			
Temporary metal garages	98,000	73,585	24,415		
Administration buildings, laboratory, and garage and fire station	256,393	245,904	10,489		
Temporary warehouse	100,598	74,684	25,914		
Water supply, treatment, plant and equipment	490,000	490,000			
Exploratory well	7,951	7,951			
Roads—temporary access roads	483,579	483,579			
Miscellaneous equipment	345,000	177,559	114,285	$6,000	$47,156
Office furniture and equipment	50,000	39,247	5,000	2,000	3,753
Transportation equipment	100,000	84,763	5,000	4,000	6,237
Stores equipment	10,595	1,190	2,438	5,000	1,967
Shop equipment	25,000	6,113	4,030	5,000	9,857
Laboratory equipment	15,000	5,991	9,009		
Tools and work equipment	85,000	55,859	15,000	10,000	4,141
Communication equipment	2,000	707			1,293
Subtotal	5,000,000	4,652,406	241,190	32,000	74,404
Charged to permanent property	−5,000,000	−146,899	−544,000	−544,000	−3,765,101
Total		4,505,507	−302,810	−512,000	−3,690,697

Stores, —$24,000.—Represents $24,000 for purchase of stores items and Government-furnished equipment, $15,000 for stores expense which is more than offset by −$63,000 of stores purchased in prior years that will be used and charged into the project features during the year.

Transfers, credits, and other expenditures, —$10,000.—Provides for the distribution to permanent facilities of $10,000 of prior costs for the natural gas service system.

Undelivered orders, —$2,924,495.—Represents the net change in obligations for goods and services on order but not yet received.

Changes in total obligations

	Obligations
1960 congressional justification	$66,447,000
1961 congressional justification	66,447,000
No change	

Schedule of construction program fiscal years 1960 and 1961, Colorado River storage project, Flaming Gorge unit, Utah

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Flaming Gorge Dam and Reservoir	$43,556,000	$3,746,748	$9,478,930	$11,417,495	$18,912,827
Flaming Gorge powerplant and switchyard	20,132,000	1,736,374	2,500,000	4,053,000	11,842,626
General property	2,903,000	672,309	21,126	----------	2,209,565
Recreation	3,109,000	----------	----------	----------	3,109,000
Service facilities	----------	4,505,507	−302,810	−512,000	−3,690,697
Stores	----------	33,118	60,000	−24,000	−69,118
Transfers, credits, and other expenditures	−3,253,000	−19,462	−153,000	−10,000	−3,070,538
Total expenditures	66,447,000	10,674,594	11,604,246	14,924,495	29,243,665
Undelivered orders	----------	5,431,068	1,293,427	−2,924,495	−3,800,000
Total obligations	66,447,000	16,105,662	12,897,673	12,000,000	25,443,665
Method of financing:					
Appropriation, fiscal year 1960	----------	----------	12,675,000	----------	----------
Application of prior year funds	----------	----------	222,673	----------	----------
Appropriations required	----------	----------	----------	12,000,000	25,443,665

FLAMING GORGE RECREATIONAL FACILITIES

Mr. RABAUT. Why are recreational facilities increased from $1,222,000 to $3,109,000?

Give us a breakdown showing what facilities are proposed. Supply it for the record.

Mr. DOMINY. We will be glad to do that.

(The information requested follows:)

RECREATION FACILITIES, FLAMING GORGE UNIT

Facilities tentatively proposed and the estimates of cost as prepared by the National Park Service are as follows:

Roads and parking area	$718,742
Trails and walks	13,730
Boat-launching ramps	123,604
Marina development	89,054
Picnic areas	111,080
Camping areas	163,670
Beach and bathhouse	100,313
Water supply	144,318
Sanitary system	122,715
Power distribution	94,875
Telephone distribution	17,720
Irrigation system	67,500
Site preparation	124,000
Signs	2,250
Visitors center and administration building	70,000
Employee housing	220,000
Seasonal quarters	76,000
Office and utility building	48,000
Warehouse	24,000
Contingencies	310,880
Detail plans, surveys, and supervision of construction	466,549
Total	3,109,000

Mr. DOMINY. This is going to be one of the finest recreational areas of the West. It is going to be a beautiful lake in a beautiful canyon country.

GLEN CANYON UNIT, ARIZONA-UTAH

Mr. RABAUT. Now we will take up the Glen Canyon unit. That is $35,535,000. Insert pages 416 through 421.

(The pages referred to are as follows:)

PF-65 (7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Upper Colorado River Basin--Northern Arizona in Coconino County and southeastern Utah in Kane and San Juan Counties. The dam is on the Colorado River about four miles south of the Arizona-Utah boundary and 15 river miles upstream from Lee's Ferry. The reservoir will extend into southeastern Utah.

AUTHORIZATION Act of April 11, 1956 | B/C RATIO 1.4 | Date December 1958

LAND CERTIFICATION None required | DEFINITE PLAN REPORT None required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 322,439,244	Appropriations to June 30, 1959	$ 83,242,148
Net Property and Other Transfers	10,870,643	Appropriations for F. Y. 19 60	43,736,075
Cash Advances--Non-Federal	1,635,000	Appropriations to Date	126,978,223
Adjustment	1/ 29,453,000	Initial Underfinancing F. Y. 1960	--
		Appropriations Required for F. Y. 1961	35,535,000
Total to be Allocated	$ 364,397,887	Balance to Complete after F.Y. 19 61	$ 159,526,021

ALLOCATIONS 4/

Irrigation	$ 48,761,000
Power 1/	303,472,645
Recreation	9,241,000
Flood & Nav. CRDF Invest.	628,242
Advances 2/	2,295,000
Total	$ 364,397,887

REPAYMENT

Amount Repaid by Irrigators	$
Amount Repaid by Power	352,233,645
Amount Repaid by M. & I. Water	
Non-Reimbursable 3/	12,164,242
Total	$ 364,397,887

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$
Repayment of Investment per acre:	
By Irrigators	$
By Power Revenues	
By M & I Water Users	
Payment Capacity per Acre	$
Annual Charges:	
O. & M.	$
Construction	
Total	$

STATUS OF REPAYMENT CONTRACT: None required

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Glen Canyon Dam & Reservoir	28,040,000AF	29	6-64				
Glen Canyon Powerplant and Switchyard	900,000KW	9	6-66				
Preservation of Rainbow Bridge National Monument		0	9-62				
General Property		0	6-66				

Acreage Full Supply ____ Supplemental Supply ____ Total Acres ____ Power kw 900,000

Region	Date	Project and State
4	1-18-60	Colorado River Storage Project, Glen Canyon Unit, Arizona-Utah

BR-416

[1] Includes reimbursable $29,453,000 interest during construction.
[2] Includes $1,635,000 advanced by State of Arizona, $600,000 allocated by the Bureau of Public Roads, $60,000 advanced by the city of Los Angeles.
[3] Includes advances, Colorado River development fund, and cost of recreation facility works which are to be financed from funds other than Upper Colorado River Basin Fund.
[4] Change in allocations:

	Fiscal year 1961 justifications	Fiscal year 1960 justifications
Irrigation	$48,761,000	$48,761,000
Power	303,472,887	303,472,645
Colorado River development fund	628,000	628,242
Advances	2,295,000	2,295,000
Recreation		9,241,000
Total to be allocated	355,156,887	364,397,887

No actual change in basic allocation. Total to be allocated has been increased by the addition of recreation in the amount of $9,241,000 for facilities to be constructed under provisions of section 8 of the act of April 11, 1956, with funds from sources other than the Upper Colorado River Basin Fund. Colorado River development fund (CRDF) has changed from a rounded amount to an actual amount, with a compensating adjustment in the power allocation.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2⅛ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.32.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.28.

JUSTIFICATION

Description.—The primary purpose of the Glen Canyon unit, which is located in northern Arizona and southeastern Utah, is the regulation and storage of floodflows of the upper Colorado River and the generation of hydroelectric power. Water stored, as in the other storage units of the project, will assist in complying with the terms of the Colorado River compact and will, by exchange, furnish an irrigation supply for the participating projects. In addition, there will be benefits from silt retention, fish and wildlife conservation, and improved recreational facilities.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed, fiscal year 1961

Glen Canyon Dam and Reservoir, $32,544,933.—The program provides for continuing concrete placement for the dam, continuing payments on cement, pozzolan, and other materials and equipment for the dam, and miscellaneous associated expenditures. Contracts will be awarded for additional materials and equipment.

Glen Canyon powerplant and switchyard, $18,098,476.—The program provides for continuing construction of the powerplant, payments on materials and equipment for installation in the powerplant, and miscellaneous associated expenditures. Contracts for generators, governors, and other equipment will be awarded. Design and specification work for the completion contracts for the powerplant and switchyard will continue.

Protection of Rainbow Bridge National Monument, $3,500,000.—For completion of preconstruction work and award of contract for the construction of the protective work for Rainbow Bridge National Monument, payment of contract earnings, and miscellaneous associated expenditures.

Service facilities, —$423,000.—Represents the acquisition of replacement automotive equipment and other equipment and tools. Some charges will be distributed to project features on a use basis. Of the $11,800,000 total estimate for service facilities, $10,396,242 has been used to June 30, 1959, $630,917 is scheduled for fiscal year 1960, $97,000 in fiscal year 1961, and $675,841 in subsequent years. The following table shows the details of these amounts:

Item	Total estimate	Total to June 30, 1959	Fiscal year 1960	Fiscal year 1961	Subsequent years
Permanent housing	$3,941,000	$3,578,822	$94,000		$268,178
Temporary housing					
Portable housing	373,756	373,756			
Warehouse	539,419	535,662	3,757		
Municipal building	117,000	112,806	4,194		
Police, garage, and fire station building and administration building	691,000	473,658	106,097		111,245
Laboratory	69,000	65,757	3,243		
Temporary field buildings	120,337	120,337			
Water supply and treatment plant elevated tank, reservoir	1,626,624	1,626,624			
Sewage treatment plant	321,889	321,889			
Airstrip	311,139	311,139			
Grading, streets, sidewalks, fencing, utilities, soil stabilization, landscaping	2,359,922	2,051,817	296,378		11,727
Grading and foundations for portable houses	35,557	35,557			
Temporary utilities and trailer courts	60,000	57,900	2,100		
Access roads	58,357	51,209	7,148		
Miscellaneous equipment	330,000	254,288	5,000	$20,000	50,712
Office furniture and equipment	130,000	109,020	15,000	5,980	
Transportation equipment	349,000	153,034	52,000	8,000	126,966
Stores equipment	82,000	61,113	8,000	4,000	8,887
Shop equipment	100,000	9,689	20,000	20,000	50,311
Laboratory equipment	68,000	27,443	5,000	5,000	30,557
Tools and work equipment	100,000	52,503	7,000	30,020	10,477
Communication equipment	25,000	12,219	2,000	4,000	6,781
Subtotal	11,800,000	10,396,242	630,917	97,000	675,841
Charged to permanent property	−11,800,000	−289,130	−561,899	−520,000	−10,428,971
Total		10,107,112	69,018	−423,000	−9,753,130

Stores, $25,000.—Represents $7,691,928 to be expended for cement, pozzolan, and other stores items which will be offset by $7,666,928 worth of materials that will be used in unit features during the year.

Transfers, credits, and other expenditures, —$210,409.—Primarily consisting of prior year costs of $200,000 distributed to project features and charges from Solicitor's Office financed from appropriation to that Office.

Changes in total obligations

	Obligations
1960 congressional justification	$324,074,244
1961 congressional justification	324,074,244
No change	

Schedule of construction program fiscal years 1960 and 1961, Colorado River storage project, Glen Canyon unit, Arizona-Utah

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Glen Canyon Dam and Reservoir	$183,236,887	$54,074,916	$29,365,014	$32,544,933	$67,252,024
Glen Canyon powerplant and switchyard	119,536,000	10,954,006	7,336,048	18,098,476	83,147,470
Protection of Rainbow Bridge National Monument	15,000,000	41,529	70,000	3,500,000	11,388,471
General property	7,931,000				7,931,000
Recreation	9,241,000				9,241,000
Service facilities		10,107,112	69,018	−423,000	−9,753,130
Stores		72,385	200,000	25,000	−297,385
Transfers, credits, and other expenditures	−10,870,643	−1,646,709	−30,096	−210,409	−8,983,429
Total expenditures	324,074,244	73,603,239	37,009,984	53,535,000	159,926,021
Undelivered orders		10,638,513	−10,638,513		
Total obligations	324,074,244	84,241,752	26,371,471	53,535,000	159,926,021
Method of financing:					
Appropriation, fiscal year 1960			43,736,075		
Application of prior year funds			635,396	18,000,000	
Amount available in subsequent year			−18,000,000		
Appropriations required				35,535,000	159,926,021

RAINBOW BRIDGE NATIONAL MONUMENT

Mr. RABAUT. Please explain the item of $3,500,000 for protection of the Rainbow Bridge National Monument at a cost of $15 million or more.

Mr. DOMINY. The authorizing act for the Colorado storage project carried two requirements with regard to making certain that national parks and national monuments would be protected against encroachment of man-made structures and man-impounded water under this project. The first of these referred specifically to the Rainbow Bridge and directed the Secretary of the Interior to take such steps as he found necessary to protect the Rainbow Bridge National Monument.

The second prohibition contained in the act is one that says that: "it is the intent of Congress that no dam or reservoir shall be constructed within the boundaries of any national park or national monument."

Consonant with those instructions, the Bureau of Reclamation, in cooperation with the National Park Service, has made an examination of the Rainbow Bridge National Monument which is on Bridge Creek, approximately 38 miles upstream from Glen Canyon Dam.

Bridge Creek is normally a dry canyon creek that drains part of the Navajo Mountain area.

Mr. TABER. Have you pictures of this Rainbow Bridge Monument?

Mr. DOMINY. Yes, sir. That is a natural monument constructed by forces of nature. In order for the committee to understand the problem—if no protective works are built—when Glen Canyon Dam is filled it would back water through the 160-acre Rainbow Bridge National Monument and would impound water underneath the arch of the bridge.

Now, in order to carry out the intent of the act, we would have to build a barrier dam below the monument to prevent the reservoir waters from backing up into the monument grounds. This barrier dam that is proposed is about 185 feet high above the streambed. It would be an earth-filled structure. That would retain the reservoir behind Glen Canyon and prevent it from encroaching on the monument grounds. However, there would be natural runoff coming down Navajo Mountain every time it rained or snow melted and this would pond up behind the barrier dam, on the upstream face and then water would encroach on the monument and so we would have to dispose of that by pumping such water over the barrier dam.

So the second part of the plan is to build a diversion dam on Bridge Creek above the monument area, with a 21-foot-diameter tunnel diverting the natural runoff that is produced above the monument through the tunnel and into Aztec Creek.

These two devices together with a pumping plant at the barrier dam because we still would have some runoff between the barrier dam and the diversion tunnel—the diversion dam and tunnel—and we would also have some seepage from the reservoir in the vicinity of the barrier dam which would have to be pumped over the barrier dam and back into the lake.

Now, the reason we can't give you a very firm estimate on the cost here is because this is a very remote area; it is one of the roughest areas in the United States from a topographic standpoint and there are no access roads within the proximity of it.

Mr. RABAUT. You feel that the $15 million amount is low?

Mr. DOMINY. I have no confidence that it is adequate because we just have to make too many assumptions with little, if any, comparable experience to base them on.

Mr. RABAUT. If we didn't do anything at all there wouldn't be any damage to the natural bridge, would there? Wouldn't you get the reflection of the beauty of the bridge in the water and everything else if the water just came up to that height?

Mr. DOMINY. As far as structural damage to the bridge is concerned, there has been geological examination not only by——

Mr. RABAUT. You have mentioned the geological examination of it. We are going to put the last two pages from this geological examination of the Rainbow Bridge National Monument, by Wallace R. Hanson, in the record. This is an administrative report. We will put this in the record at this point.

Mr. DOMINY. That will give you a good summation of the geological findings as far as damage if any to the permanency of the maintenance of the arch itself is concerned. You will note, however, Mr. Chairman, that report points out there would be water-

marks on the walls of the canyon under the bridge and there would be some silt deposition and things of that sort which would adversely affect the aesthetic values of the monument.

(The pages referred to are as follows:)

EFFECTS OF POSSIBLE STANDING WATER UNDER RAINBOW BRIDGE

Unless a barrier dam is constructed somewhere downstream from Rainbow Bridge, water backed up by Glen Canyon Dam will attain a maximum depth of about 46 feet directly beneath Rainbow Bridge when the reservoir level stands at altitude 3,700 feet. Somewhat greater depths, possibly as much as 60 feet, may occur temporarily when periods of extreme flood stage on the Colorado River coincide with high water behind the dam.

According to calculations of the Bureau of Reclamation the water surface of the reservoir will stand at altitude 3,700 feet only 13 percent of the time during the initial 50 years of operation, but it will be under the bridge 77 percent of the time and within the monument 95 percent of the time unless a barrier dam is constructed downstream to restrain it. The possible effect of repeated inundations and drawdowns beneath the bridge has been a matter of considerable speculation. The inner gorge of Bridge Creek, therefore, was examined in detail in the vicinity of Rainbow Bridge with the above facts in mind.

There appears to be no valid geologic reason to fear structural damage to Rainbow Bridge as a result of possible repeated incursions and withdrawals of reservoir waters to and from the inner gorge of Bridge Creek beneath the bridge. Rocks within this zone consist entirely of sandstone units of the Kayenta formation, which at the bridge is intermittently saturated by ground water under existing conditions and shows no deleterious effects. Intermittent wetting with reservoir water would only duplicate already existing conditions.

The erosive effect of possible wave action in the narrow inner channel would assuredly be negligible and certainly would be less vigorous than the actions of past flash floods, which themselves have not endangered the structural stability of the bridge. The Navajo-Kayenta contact, at an altitude of about 3,720 feet beneath the bridge, is sufficiently high to preclude its being wetted even by flood-stage water levels in the reservoir. Even if the water could rise to the contact—which it could not—there is no reason to believe that Rainbow Bridge would be endangered. In fact, intermittent seepage now occurs in the Navajo sandstone just above the contact in the left abutment.

It thus is clear that any possible impairment to the bridge from fluctuating standing water beneath it would be esthetic rather than geologic or structural. The destruction of natural vegetation, the waterlines left on canyon walls during reservoir drawdown, and the apparent reduction in the height of Rainbow Bridge by the depth of the water beneath it, for example, are esthetic effects. Esthetic effects do not lend themselves to physical measurement, hence tend to be subjective and are difficult to evaluate. But in the public interest, they should receive consideration in formulating any plan to protect the monument from impairment.

Mr. RABAUT. How many visitors came to the bridge during 1959 and how did they get there?

Mr. DOMINY. Mr. Chairman, I was interested in this problem and took a personal trip there in September 1958. This is a very remote area and access is difficult. I notice that the ledger which is available for the signature of visitors and which has been maintained since the monument was established in 1909 had less than 13,000 signatures as of September 1958.

I have here a record of the visitation for the year 1958 which was the last year the records were available. This comes from the data furnished by the National Park Service showing information relating to Rainbow Bridge National Monument.

The Rainbow Bridge National Monument contains 160 acres. It is estimated that between 15 and 25 acres would be flooded by Glen Canyon Reservoir, if no restraining dam is built.

The attendance at the monument during 1958—the last year the records are available—totaled 1,238. Of this total, 72 hiked over the Navajo Mountain trail, 57 traveled by horseback over the Navajo Mountain trail, and 1,109 traveled by boat to the confluence of Colorado River and Aztec Creek and then hiked to the monument.

Mr. RABAUT. I want the record to show that I asked that you read that into the record.

Mr. DOMINY. Yes, sir.

Mr. RABAUT. Will it be possible for people to get to the monument even if we don't build the protective works?

Mr. DOMINY. Yes, sir.

The Glen Canyon Reservoir, when absolutely full, would back water clear through the monument grounds. But within the reservoir's normal operating range as we predict, based on hydrologic records of many years standing on the Colorado River, access by boat up into Aztec Creek to within a distance of easy walking range of Rainbow National Monument would always be accessible with or without the barrier dam in place.

Mr. RABAUT. What is easy walking range?

Mr. DOMINY. Well, my own judgment on this, based on actually visiting the site and spending some time on foot and on horseback around there, I would say that the place to anchor the boats would be at the confluence of Bridge Creek and Aztec Creek because Bridge Creek is very, very narrow and I think that the kind of traffic we will have on Glen Canyon Reservoir, it would not be good judgment to allow the boats to come up into Bridge Creek. That would be a walk of about a mile to a mile and a half. Of course, since the lake will vary in elevation, it would be necessary to provide a landing there where the boats would be tied up and a trail on up to the monument.

Mr. RABAUT. Now, you said to go up some little body of water? Up to what?

Mr. DOMINY. Aztec Creek.

Mr. RABAUT. Is that a creek that has water in it the year around?

Mr. DOMINY. It doesn't at the moment but when the reservoir is filled water will back up into Aztec Creek and will also back up into Bridge Creek as far as the proposed barrier dam, but boat access would be very good up to the mouth of Bridge Creek without any problem.

Mr. TABER. Now, there are some things that it would appear to me ought to be brought out. The river at that point is up and down during the year; is it not? It isn't a steady flow or anything of that kind.

Mr. DOMINY. Under present circumstances, Mr. Taber, Bridge Creek runs water only when there is a flash flood on the Navajo Mountain drainage or when snow melts. Other than that there are a few springs and seeps in various places in Bridge Creek Canyon but not a steady running stream. Neither is there a steady running stream throughout the year down Aztec Creek because it too is a desert stream running water when it rains and when the snow melts in the spring.

Mr. TABER. You wouldn't have very many days in the year when there would be any obstruction in the way of getting to this monument, especially in the summertime.

Mr. DOMINY. I was speaking of under present circumstances. When the reservoir is built there would be an arm of the reservoir reaching up into Astec Creek and up Bridge Creek to the location of the Barrier Dam.

Mr. TABER. Would that be approachable?

Mr. DOMINY. Access by boat would be more accessible with Glen Canyon Reservoir-Lake Powell in being. You will notice here that most of the people who visited the monument in 1958 came down the Colorado River and walked 6 miles up the dry canyon.

Mr. TABER. Well, they could get to it a lot easier with the water route than they could at the present time?

Mr. DOMINY. Yes, the——

Mr. TABER. You wouldn't have anybody going up there in this kind of weather anyway.

Mr. DOMINY. Actually the year-round weather in the Southwest except for a very few days is not too rugged.

Mr. TABER. That is about the altitude of Denver, isn't it?

Mr. DOMINY. No, sir; the maximum elevation of Glen Canyon Reservoir-Lake Powell will be 3,700 feet and, of course, it is quite a little farther south than Denver; so the winter climate is not real rugged. There are a few cold days and an occasional snow flurry but there will be a lot of people making the trip particularly in the fall and in the spring and summer months but there will be some visitation the year round.

Mr. TABER. The year-round stuff wouldn't amount to much?

Mr. DOMINY. Not in the winter months, no. But the access, as far as getting to the monument is concerned in my judgment will be improved by having Glen Canyon there. And, of course, the barrier dam as required by law and which we are proposing to build would not prevent access. The boats would have to anchor, of course, below the barrier dam and there would have to be a trail on up into the monument.

Mr. TABER. There really won't be any water that would damage the bridge as a result of what would be dammed up down below?

Mr. DOMINY. Mr. Taber, in terms of damage to the permanency of the structure, no. In terms of damage to a philosophy that here is a dedication of a 160-acre national monument which is not to be encroached upon by man, except to visit it and look at it, but not to change it in any way by man-made structures, yes there would be damage unless these recommended protective measures are constructed and maintained.

Mr. TABER. There would be no more damage by this great big high dam that you would have to put in there than there would be the other way. It would interfere with the approach to it and the viewing of it.

Mr. DOMINY. There will be damage to the surrounding area outside the 160-acre monument because we can't build engineering works of this character without access and without getting the dirt locally and without making camps and roads.

Mr. RABAUT. $15 million is a doubtful figure. It will probably be more than that.

Mr. TABER. It will probably be $20 million. Is that right?

Mr. DOMINY. It could easily be. We have estimated $15 million on the basis of access primarily by helicopter but it may be that the contractors would consider that unfeasible and would insist on an access road. We propose to do this work by taking bids for the job and let the successful contractor provide such access as he deems most feasible.

Mr. TABER. Is there money in here toward this $20 million proposal?

Mr. DOMINY. Yes, sir, we have $3½ million in this 1961 budget. This work must be done starting in fiscal year 1961 or we will be running into the problem of being unable to fill Glen Canyon in compliance with the law because the law says that we shall not put water within a national monument. Therefore we need to start this work now so as to have it completed by the time we start filling because if we get a good year Glen Canyon could fill up to the level where it would back water into the monument in 1 year.

Mr. PILLION. Mr. Commissioner, how high will the water be at Rainbow Bridge if Glen Canyon is filled?

Mr. DOMINY. It will never get up out of the eroded channel underneath the arch and would never get up on the arch of the bridge itself.

Mr. PILLION. So actually there would be no destruction of the bridge, no destruction of the site of the bridge as a natural bridge, would there?

Mr. DOMINY. No, sir. I think you would have to say that the——

Mr. PILLION. Now, with regard to the law that you shall not destroy a national monument, there is also a law that no money be expended except by acts of the Congress, so that the policy is subject to another act of Congress and it would not be your responsibility if the appropriation is not made. That is a law, too, isn't it?

Mr. DOMINY. Certainly I am not authorized to spend Federal moneys that aren't appropriated.

Mr. PILLION. And your responsibility ceases right there, Mr. Commissioner, I might say.

Mr. DOMINY. There is one technicality there, Mr. Pillion. Section 3 of the authorizing act reads as follows:

> It is the intention of Congress that no dam or reservoir constructed under the authorization of this act shall be within any national park or monument.

Now, it is my understanding that this act, being as explicit as that, that if the Congress failed to appropriate the money to make it possible for me to construct these barrier dams, that an interpretation of this authorizing act could very probably limit the operation of Glen Canyon to a reservoir pool level below the level that would infringe upon the monument area. If that were to be the case, it would be very critical because the best water we have in terms of values for storage and for making power is in the 67-odd feet—the top layer of Lake Powell—that would be involved.

Mr. PILLION. Now, Mr. Commissioner, that is one theory. On the other hand, it is a rather impractical and farfetched construction of the situation.

Might I just ask this: If this remedial works will cost in the neighborhood of, say $15 million, which is a rather minimum figure, at 5-percent interest which is what we are paying now for 5-year money rather than 50-year money, that would amount to $750,000 per year as a cost to the taxpayers for maintaining this freak of nature.

Now, if we have 1,000 or 1,200 people going to this geologically unique area each year, that means it is costing the taxpayer something like $600 for one person to take a look at this bridge. That is a pretty heavy cost to the taxpayers at large for the pleasure they may get in looking at a rock that has a freakness about it by reason of weather, aging, and whatnot. It is a pretty expensive proposition.

Mr. DOMINY. Yes, sir.

Mr. PILLION. That is all.

Mr. DOMINY. Now, I would point out, Mr. Pillion, that it is my judgment that once the lake is there, that visitation to this monument will step up and average as much per month as has been to date in total in its entire life since discovery.

Mr. PILLION. There is no particular sanctity about a piece of rock that happens to be of that formation.

In the testimony before the House Interior Committee, it was stated by the Bureau of Reclamation the cost of saving the Rainbow Bridge would amount to somewhere in the neighborhood of $500,000. Was that statement roughly correct?

Mr. DOMINY. I reviewed recently the testimony that was given to the legislative committees when this was discussed at the time the Colorado storage project was authorized. I don't recall a figure of $500,000 or any other specific monetary estimate as to cost.

I did find such general assurances as these—and the quote is not precise—"the Rainbow Bridge can be protected—from what studies we have made of a reconnaissance nature, we are positive that there will be no problem engineeringwise in constructing protective works—and the cost of these works would be fairly nominal and would come within the contingency item of this large project."

Mr. PILLION. Based upon those general statements, the committee in the authorization assumed, maybe fairly or unfairly, an estimated cost of less than $1 million. Was the committee fair in its assumption based upon the testimony before the committee in this project?

Mr. DOMINY. Well I agree entirely with the point you are making, Mr. Pillion, that the legislative committees of Congress would have had no idea that the cost of protecting the Rainbow Bridge National Monument would be in an amount approaching that which is now estimated to be required.

From the testimony before them, they would get a contrary opinion—that the cost would be fairly nominal; yes, sir.

Mr. PILLION. So that the authorization act, when Congress passed it and when the committees approved it, they certainly had no idea that the cost of this project would run anywhere in the neighborhood of $15, $20 million, or more, is that correct?

Mr. DOMINY. That is indeed a fact; yes, sir.

Mr. PILLION. And certainly the assumptions made by the committee of the original cost based on the original testimony are at material and almost fantastic variance with the facts as we now know them. Is that correct, Mr. Dominy?

Mr. DOMINY. Yes, as I have stated, the cost estimates now are materially larger than anything that would be gained from Bureau testimony at the time of the legislative hearing; yes, sir.

Mr. PILLION. And I might say, Mr. Chairman, that I happened to be a member of the committee at the time. Had the committee had any indication of costs such as this, I am sure that the language in the authorization act would have been much different than is contained there now.

Thank you, Mr. Chairman.

Mr. DOMINY. Now, I would like to add, Mr. Pillion, just to make the record complete here: At the time of this discussion of protection of the Rainbow Bridge in the hearings that you refer to, of course, there had not been a joint investigation by both the Bureau and the National Park Service of the Department of the Interior as to exactly what would be required. I think we were remiss in giving an estimate based on incomplete information that was available at that time.

Mr. PILLION. Thank you, Mr. Commissioner.

NAVAJO UNIT, NEW MEXICO

Mr. RABAUT. Navajo unit, $11,776,000. Insert pages 422 through 425.

(The pages referred to are as follows:)

PF-65
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Colorado River Basin - The damsite is located on the San Juan River in San Juan and Rio Arriba Counties, New Mexico, approximately 39 miles east of Farmington, New Mexico.

AUTHORIZATION: Act of April 11, 1956 | B/C RATIO 1.2 | Date August 1958

LAND CERTIFICATION: None Required | DEFINITE PLAN REPORT: None Required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$42,327,000	Appropriations to June 30, 1959	$ 10,593,150
Net Property and Other Transfers	879,000	Appropriations for F. Y. 1960	9,696,375
Cash Advances--Non-Federal		Appropriations to Date	20,289,525
Adjustment		Initial Underfinancing F. Y. 19	
Total to be Allocated	$43,206,000	Appropriations Required for F. Y. 1961	11,776,000
		Balance to Complete after F.Y. 19	$ 10,261,475

ALLOCATIONS 2/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$42,100,172	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Invest-ment per acre:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$
Flood & Nav.	207,000	Upper Colo. Riv. Basin Fund	42,100,172	By Power Revenues	
Recreation	934,000			By M. & I. Water Users	
CRDF Invest.	64,828	Non-Reimbursable 1/	1,105,828		
Total	$43,206,000	Total	$43,206,000		

Payment Capacity per Acre	$
Annual Charges:	
O. & M.	$
Construction	
Total	$

STATUS OF REPAYMENT CONTRACT:

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Navajo Dam and Reservoir	1,709,000AF	35	3-63				
Permanent Operating Facilities		37	3-63				
Temporary Camp		100					

Acreage Full Supply _____ Supplemental Supply _____ Total Acres _____ Power kw _____

Region	Date	Project and State
4	1-18-60	Colorado River Storage Project, Navajo Unit, Colorado--New Mexico

BR-422

[1] Includes flood control, Colorado River development fund, investigations, and cost of recreation facility work for which funds are to be provided from other than upper Colorado River Basin fund.

[2] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$42,101,000	$42,100,172
Flood control	207,000	207,000
Recreation	834,000	834,000
CRDF	64,000	64,828
Total to be allocated	43,206,000	43,206,000

No change in basic allocation although Colorado River development fund has been adjusted for actual data instead of rounded data with irrigation adjusted accordingly.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.65.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.01.

JUSTIFICATION

Description.—The Navajo unit will serve as one of the storage units of the Colorado River storage project and provide irrigation water by storage of the flows of the San Juan River for the 110,630-acre Navajo project. Facilities of the unit to be built by the Bureau of Reclamation include only the Navajo Dam and the 1,709,000 acre-foot Navajo Reservoir.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed, fiscal year 1961

Navajo Dam and Reservoir, $11,960,000.—The program provides for continued construction work on the dam and the installation of Government-furnished material such as fixed-wheel gate and hoist, tandem outlet gate, ring-follower gates, hollow-jet valves, outlet pipe, stoplogs, elliptical bulkhead and miscellaneous embedded and nonembedded metalwork. The right-of-way program is to be completed this fiscal year. Program also includes the relocation of Denver and Rio Grande Western Railroad, Archuleta County road in the vicinity of Arboles, Colo.; a stockyard; and a telegraph line. Reservoir clearing will be started.

Service facilities, depreciation, and salvage, —$152,000.—The program provides $46,000 for the purchase of miscellaneous equipment, automotive parts, and supplies, which is more than offset by $198,000 of prior cost distributed to permanent property.

Consolidated expenditures and credits, —$32,000.—The program consists of adjustments totaling $10,000 for deferred power charges and $22,000 for a nonappropriation equipment transfer from other Bureau projects.

Change in total obligations

	Obligations
1960 congressional justification	$42,327,000
1961 congressional justification	42,327,000
No change	

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Navajo Dam and Reservoir	$42,330,000	$9,119,676	$10,769,408	$11,960,000	$10,522,916
Permanent operating facilities	71,943	26,765			45,178
Temporary camp	388,600	388,600			
Service facilities, depreciation, and salvage	−418,543	125,319	−114,500	−152,000	−319,362
Recreation	834,000				834,000
Consolidated expenditures and credits	−879,000	4,657	−30,400	−32,000	−821,257
Total expenditures	42,327,000	9,635,017	10,624,508	11,776,000	10,261,475
Undelivered orders		482,564	−482,564		
Total obligations	42,327,000	10,147,581	10,141,944	11,776,000	10,261,475
Method of financing:					
Appropriation, fiscal year 1960			9,696,375		
Application of prior year funds			445,569		
Appropriations required				11,776,000	10,261,475

Mr. RABAUT. You show no repayment figures on this project. What is the status of the irrigation unit at this time?

Mr. BENNETT. This particular unit, Mr. Chairman, under the authorizing act is considered as a storage unit. The entire irrigation allocation then is repayable out of the power revenues from the upper Colorado River system.

TRANSMISSION DIVISION

Mr. RABAUT. Transmission division, $518,000. Insert pages 426 through 429.

(The pages referred to are as follows:)

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(7- 58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Colorado River Basin located in the States of Arizona, Colorado, New Mexico, Utah and Wyoming

AUTHORIZATION Act of April 11, 1956 | B/C RATIO 1/ Date

LAND CERTIFICATION None required | DEFINITE PLAN REPORT None required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 157,395,000	Appropriations to June 30, 1959	$ 397,004
Net Property and Other Transfers	150,000	Appropriations for F. Y. 19 60	702,000
Cash Advances--Non-Federal	0	Appropriations to Date	1,099,004
Adjustment	2/ 9,089,000	Initial Underfinancing F. Y. 19	
		Appropriations Required for F. Y. 1961	518,000
Total to be Allocated	$ 166,634,000	Balance to Complete after F.Y. 19 61	$ 155,777,996

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$ 166,534,000	Irrig. Invest. per Acre $	Payment Capacity per Acre $
Power	2/166,534,000	Amount Repaid by Power		Repayment of Investment per acre:	Annual Charges:
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators $	O. & M. $
Flood & Nav.				By Power Revenues	Construction
CRDF 3/	100,000	Non - Reimbursable CRDF 3/	100,000	By M.& I. Water Users	
Total	$ 166,634,000	Total	$ 166,634,000		Total $

STATUS OF REPAYMENT CONTRACT: To be repaid from power revenues. To date no power contracts have been negotiated.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Future Trans. Lines and Interconnection Facilities	To be determined	0	1973				
Permanent Operating Facilities	To be determined	0	1973				

Acreage Full Supply ____ Supplemental Supply ____ Total Acres ____ Power kw ____

Region	Date	Project and State
4	1-18-60	Colorado River Storage Project Transmission Division - Arizona, Colorado, New Mexico, Utah and Wyoming

BR-426

1/ The cost of the transmission division is distributed among the Glen Canyon, Flaming Gorge, and Curecanti storage units for economic analysis. The benefit-cost ratio would be the same as for the storage units combined.
2/ Includes $9,089,000 reimbursable interest during construction.
3/ Nonreimbursable amount financed with Colorado River development funds.

NOTE.—Benefit-cost ratios not computed. Benefits and costs included in analysis of the various generating units.

JUSTIFICATION

Description.—The transmission division will include transmission lines, substations, switchyards, and other facilities to provide for the interconnection of storage project powerplants with each other, with participating project power facilities, and with other Federal powerplants in order that the greatest practicable amount of firm power and energy can be produced and delivered to load centers for sale. This transmission system will also be interconnected with transmission facilities of public and private utilities in the area for delivery of power to customers.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed, fiscal year 1961

Future transmission line and interconnection facilities, $495,000.—The program provides for completion of studies and discussions with all interested parties on the proposed transmission system. When final decision has been reached, preconstruction work, including survey design and right-of-way procurement, will be initiated on transmission line or lines selected for initial construction. Board studies and alinement surveys will be continued on the complete transmission system.

Permanent operating facilities, $36,000.—Provides for construction of warehouses, shops, garages, and laboratory for use during preconstruction and construction activities.

Service facilities, depreciation, and salvage, —$9,000.—Represents distribution of prior costs of service equipment and facilities to permanent property.

Consolidated expenditures and credits, —$4,000.—Represents purchase of $1,000 of stores items offset by adjustment of $5,000 for vehicles procured by non-appropriation transfer.

Change in total obligations

	Obligations
1960 congressional justifications	$157,395,000
1961 congressional justifications	157,395,000
No change	

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Future transmission lines and interconnection facilities	$154,545,000	$451,288	$765,767	$495,000	$152,832,945
Permanent operating facilities	3,990,000	15,250	15,000	36,000	3,923,750
Service facilities, depreciation, and salvage	−990,000	−1,000	−4,000	−9,000	−976,000
Consolidated expenditures and credits	−150,000	−139,301	−4,000	−4,000	−2,699
Total expenditures	157,395,000	326,237	772,767	518,000	155,777,996
Undelivered orders		8,500	−8,500		
Total obligations	157,395,000	334,737	764,267	518,000	155,777,996
Method of financing:					
Appropriation, fiscal year 1960			702,000		
Application of prior year funds			62,267		
Appropriations required				518,000	155,777,996

MEETING WITH UTILITIES AND PREFERENCE AGENCIES

Mr. RABAUT. Last year the Congress urged you to bring all interested parties, including private utilities, into your planning on this system. What have you done about this and what does your plan look like in broad perspective at this time?

Mr. DOMINY. I want to say briefly we have had a number of meetings with the utilities and preference agencies from all of the States in the Colorado Basin.

Mr. RABAUT. When did you have those meetings?

Mr. DOMINY. And Mr. Bennett, who has been my agent in conducting these meetings along with the chief of our power division, Mr. Campbell, can give you a full report and the progress that is being made.

Mr. BENNETT. The first meeting was held July 10, 1959.

Mr. RABAUT. I just wanted to find out if you had the meetings last week. Go ahead.

Mr. BENNETT. At that meeting we had together the representatives of the interested private utilities and the preference customers. At that time we presented to them the results of some preliminary studies which we had as to the preliminary ideas as to where transmission lines ought to go and the voltage at which those lines ought to be constructed. We asked both the utilities and the preference customers to review that proposal very carefully and at the earliest opportunity to let us have their views as well as their views on the possible loads that ought to be served by this project.

On October 1, the private utilities asked us for another meeting and they presented to us at that time a proposal of their own for construction of the transmission facilities. However, they did not propose to construct all of the so-called backbone transmission lines.

We asked the utilities if they would arrange another meeting so that the perference customers could be made fully aware of what the utilities proposal was. That meeting was held October 13.

On November 8, we held another meeting with the utility engineers to review various load estimates.

We met again December 15 with both the engineers from the utilities and the preference customers to consider additional studies.

We met December 21 with the representatives from the Colorado River Water Conservancy Board who wanted to talk about these same problems.

On January 5 we met again with the engineers to start the machine runs for the transmission line study.

On January 19 our regional director at Salt Lake City wrote a letter to the utilities laying out for them the principles under which we propose to consider their proposition for construction of transmission lines.

On February 25 this year I went out to Salt Lake City and met with the utility representatives to discuss that matter further. There have been no additional meetings since that time.

Mr. RABAUT. I want to say one thing. You paid attention to the suggestion of the committee that you have some meetings.

Mr. DOMINY. They have been profitable meetings. We couldn't have made the progress we have made to date without having the type of meetings the committee wanted us to have.

Mr. RABAUT. What does your plan look like in broad perspective at this time?

Mr. BENNETT. In the justification book, Mr. Chairman, there is a rough map which lays out the tentative proposal of the Bureau of Reclamation.

We proposed a backbone system of 345 kilovolt from Glen Canyon into the Springfield, Utah, area; 345 kilovolt from Glen Canyon down to the Prescott, Ariz., area; 345 kilovolt from Glen Canyon to Four Corners and then northeasterly into Colorado, and a 345-kilovolt line down into the Albuquerque area.

We also proposed 115-kilovolt lines from Flaming Gorge north, west, and east.

Mr. PILLION. May I submit this for the record?

Mr. RABAUT. This goes to the transmission line?

Mr. PILLION. Yes.

(The information referred to is as follows:)

Mr. PILLION. Will you supply for the record exactly for what the $764,267 program for fiscal year 1960 has been or is to be spent? Also for the fiscal year 1961 requested funds? How much of the prior appropriation for the transmission division has been spent to date?

(The material requested follows:)

COLORADO RIVER STORAGE PROJECT—TRANSMISSION DIVISION PROGRAMS, FISCAL YEAR 1960 AND FISCAL YEAR 1961

Of the total amount of $1,099,004 made available to this activity $714,421 has been obligated as of January 31, 1960. The fiscal year 1960 program of $764,267 and the fiscal year 1961 program of $518,000 for the transmission division are as follows:

Program item	Obligation program for fiscal year 1960	Obligation program for fiscal year 1961
Future transmission lines and interconnection facilities:		
Studies and discussions with all interested parties	$128,267	$20,000
Surveys	162,000	185,000
Collection of design data	150,000	47,000
Designs	324,000	160,000
Right-of-way transactions		70,000
Permanent operating facilities		36,000
Total	764,267	518,000

Mr. PILLION. Has or will the funds be used to buy easements or take options on land in any specific or for any particular transmission line?

Mr. DOMINY. The fiscal year 1961 program includes $30,000 for easements and $40,000 for options for right-of-way which will be the initial expenditure in connection with right-of-way on the transmission division. The expenditure of these funds will be made on the line or lines selected for construction as a result of the studies currently underway.

Mr. PILLION. It is noted that the major utility systems in Utah and Arizona have announced plans for construction of high-voltage interconnecting transmission lines between their respective systems, and have advised the Bureau that they are prepared to wheel the Colorado River storage project power.

Is the Bureau giving consideration to such wheeling proposal? Would not such wheeling arrangement eliminate the need to spend the taxpayers' money for parallel lines?

Mr. DOMINY. Yes, the Bureau is giving consideration to such a wheeling proposal and, in fact, several meetings have been held with the utilities. Should the wheeling proposal be accepted, the Bureau would construct certain lines and the utilities certain lines. Naturally construction of any backbone lines by the utilities would relieve the Government of an investment, but this is only part of the total picture.

The House Committee on Interior and Insular Affairs in House Report No. 1087 on the then proposal of the private power companies stated:

"Therefore, the committee expects the proposal by the private power companies for cooperation in the development to be carefully considered by the Department of the Interior and the electric power and energy of the project to be marketed, so far as possible, through the facilities of the electric utilities operating in the area, provided, of course, that the power preference laws are complied with and project repayment and consumer power rates are not adversely affected."

Mr. PILLION. A few years ago the Federal Power Commission took the position that the logical market for Glen Canyon power was in the lower basin States, which would be California and Arizona. Has any consideration been given to tying the Glen Canyon project into the Bureau system at Boulder or Parker and eliminating the proposed costly tie between Glen Canyon and Flaming Gorge? The Bureau made reference to such an interconnection in their memorandum of January 18, 1960, on the proposed criteria for filling Glen Canyon Reservoir.

Mr. DOMIMY. The Bureau has given and is still giving consideration to an electrical tie between the Glen Canyon project and the Boulder Canyon project. Such a tie may be useful for all three or any combination of the purposes of system stability, marketing, and integration. However, such a tie will not eliminate the desirability of a tie between Glen Canyon and Flaming Gorge.

These plants should be tied together in order to obtain maximum firm power production. A line from Glen Canyon to Boulder Canyon would not accomplish this.

Mr. PILLION. Have the allocations of power been made from the project plants to the various users in the Colorado River Basin States? If so, have they been made public?

Mr. DOMINY. There has been no allocation of power made from the Colorado River storage project.

Mr. PILLION. If not, how can the transmission lines be designed, located, or constructed, if you do not know how much power they will carry and to whom or where?

Mr. DOMINY. The design and preliminary construction of transmission lines need not await the final allocation of power. There has been a market survey made by the Federal Power Commission and the Bureau of Reclamation has also conducted a power survey of the area. In addition, the preference customers in the area have supplied the Bureau with their preliminary views on load growth. From these various sources of information the Bureau is able to proceed with preliminary designs and location of transmission lines. Final determination of the allotment of power will have little, if any effect on backbone transmission line voltage and location.

Mr. PILLION. With Glen Canyon powerplant not expected to be completed until 1966, ample time is available to make a real analysis of what is the proper market for Glen Canyon power and what lines or wheeling arrangements would be necessary to reach such market. Is this not true?

Mr. DOMINY. This is not true. Transmission lines must be available when power first becomes available for marketing. We cannot wait until the project is complete before providing a means of disposing of the power. Since Flaming Gorge is presently scheduled for initial operation in June 1963 and Glen Canyon for June 1964 time is of the essence and the Bureau must proceed with all possible speed to provide a means of marketing Colorado River storage project power either by the construction of transmission lines, or by negotiating satisfactory wheeling contracts.

Mr. EVINS. Will the gentleman yield?

Mr. RABAUT. Yes.

Mr. EVINS. Our committee instructed the Bureau last year to have these meetings and to come up with some plan and program and this represents your proposals, what you propose to build?

Mr. BENNETT. Not finally; no, sir. Had the proposition by the utilities not come up in October of last year, we would be able to put before you today a proposal for construction of Federal transmission lines in the upper basin. However, because we do have their proposal, we must consider it in some detail.

TRANSMISSION LINES BUILT BY PRIVATE UTILITIES

Mr. EVINS. How many miles do the private utilities propose to build?

Mr. BENNETT. The private utilities under their proposal would build about 684 miles initially. They would supplement that later on with about another 600 miles of lines.

Mr. EVINS. What is the total overall mileage of lines that would be required in the opinion of the Bureau of Reclamation to feasibly bring this power to marketing centers?

Mr. BENNETT. Somewhere in the neighborhood of 3,000 circuit miles.

Mr. EVINS. And how many miles do you propose to build initially before this intervening proposal of the private power companies came in?

Mr. BENNETT. Approximately the same amount.

Mr. EVINS. It was about 3,000?

Mr. BENNETT. Yes.

Mr. EVINS. They are proposing to build about one-half?

Mr. BENNETT. Initially, yes.

Mr. EVINS. Not one-half initially if you take the total.

Mr. BENNETT. You didn't let me go into the third step which they have which would be the construction of an additional roughly 700 miles.

Mr. EVINS. In other words, they propose to build about half of the powerlines?

Mr. BENNETT. They propose to build about 2,000 miles and the Bureau about 1,000 under their proposal.

Mr. EVINS. That is what I am trying to get at in round figures.

You need 3,000 miles of transmission line to bring this to distribution centers and now the private power companies are proposing to build 2,000 miles and leave the various sparse, high-cost, expensive areas to the Bureau. The areas which they don't care to get into?

Mr. BENNETT. They would propose that the Bureau build the lines which would interconnect Glen Canyon and the Four Corners area and the line from Flaming Gorge into Oak Creek, Colo.

Mr. EVINS. They propose to come right up to the bus bar and take the power?

Mr. BENNETT. Or wheel it, either one. Take the power at the bus bar and wheel it to the preference customers.

Mr. EVINS. I want, as one member, for the record, to say that I hope you will give this proposal a thorough, close scrutiny, study, and consideration and particularly as to the effects on power rates, and that the Bureau will not fail to take into consideration a proper, just, and fair allocation of power to the preference customers. That they would not be denied at key points and centers.

Mr. DOMINY. We appreciate your position, Mr. Evins. I want to assure you that the Bureau recognizes that the Colorado storage project was authorized primarily as a reclamation-irrigation project and that the power was authorized as an important multiple-purpose feature aspect of it and that the financial feasibility of the project is predicated pretty largely on the power features.

Mr. EVINS. This may well have been covered at times when I wasn't here, but this project is being authorized by Congress and built over the opposition of the private power companies and now that it is being built, don't let them have the cream of the crop. That is my personal view.

Mr. DOMINY. I can assure you that our technical organization is attempting to make the studies to present the best plan for the disposition of the power and the delivery of it to preference customers in accordance with existing law.

Mr. EVINS. Thank you.

Advance Planning, Upper Colorado River Basin Fund

Mr. Rabaut. Advance planning, $938,000. Insert pages 430 through 440.

(The pages referred to are as follows:)

Upper Colorado River Basin Fund—Advance Planning

Summarized financial data

Total obligations, fiscal year 1960	$961,013
Allotment, fiscal year 1961	938,000
Total obligations	938,000

Purpose of program.—Subsequent to authorization of a Bureau of Reclamation project, additional detailed studies are generally required to refine the findings of the feasibility report and evolve a definite plan of development prior to start construction. The major portion of this work consists of the collection of final design data, the preparation of final designs and specifications, and completion of the definite plan report. It also includes negotiations with local interests leading to execution of repayment contracts. This advance planning program will finance detailed preconstruction studies on the Crystal Dam facilities of Curecanti storage unit and the participating projects of the Colorado River storage project and participating projects to prepare those developments for start of construction. During fiscal year 1961 advance planning will be underway on the following projects:

CURECANTI UNIT, COLORADO

Location and description.—This unit is located on the Gunnison River in east-central Colorado near the city of Gunnison. The unit will include the Blue Mesa Dam, Reservoir, and powerplant, located about 30 miles below the city of Gunnison and the Morrow Point Dam, Reservoir, and powerplant, located about 12 miles below the Blue Mesa Dam. The Blue Mesa development would consist of an earth and rock fill structure 350 feet high which will create a reservoir of 915,000 acre-feet and a powerplant with 60,000 kilowatts of installed capacity. The Morrow Point Dam, a concrete structure 400 feet high, would impound 117,000 acre-feet of water and provide head for a powerplant of 40,000 kilowatts of installed generating capacity. Investigations are underway of the economic feasibility of including in the unit a third development—the Crystal Dam, Reservoir, and powerplant—located immediately downstream from the Morrow Point Dam.

Authorization.—Act of April 11, 1956 (70 Stat. 105). Authorizing act provided that construction of the Curecanti unit was not to be undertaken until the Secretary of the Interior had certified to the Congress and the President that the benefits exceed costs.

Cost of investigations

Total estimated cost preconstruction planning	[1] $639,380
Estimated cost to June 30, 1960	[1] 592,587
Fiscal year 1961 program	46,793
Planning allocation	45,730
Stores on hand, etc	1,063
Balance to complete	
Total estimated project cost	[2] 72,450,000

[1] Includes cost of investigations of Blue Mesa, Morrow Point, and Crystal facilities.
[2] Includes cost of Blue Mesa and Morrow Point Dams, Reservoirs, and powerplants only.

Fiscal year 1961 program.—The Secretary's supplemental report and certification of economic justificaton of the Blue Mesa and Morrow Point developments required by the authorizing legislation was transmitted to the Congress on July 14, 1959. The funds for fiscal year 1961 will be used to complete the studies of the economic feasibility of the Crystal development and to prepare a report thereon.

Justification.—This unit is one of the four authorized storage units of the Colorado River storage project and participating projects. The primary purpose of the storage units is to provide the long-term, holdover storage capacity on the Colorado River and its major tributaries that is necessary to permit the States of the upper basin to meet the requirements of the Colorado River compact regarding flows at Lee Ferry and, by water exchange, make possible upstream developments for beneficial use of each of the States' apportioned share of the water of the Colorado River. The Curecanti unit would contribute to this objective by providing the regulation needed to control the flow of the Gunnison River, one of the major tributaries of the Colorado River. The unit would also provide a substantial block of hydroelectric power to meet the needs of the rapidly expanding population and the growing industry in the power market area. Studies indicate the full amount of the electrical energy that would be produced by the Curecanti unit could be fully absorbed within the market area within a very short time after its availability. In addition, the reservoirs of the Curecanti unit would provide extensive recreational opportunities.

CENTRAL UTAH PROJECT, UTAH

Location and description.—The central Utah project, initial phase, will be constructed in the Bonneville Basin in east-central Utah and in the Uinta River Basin, a tributary of the Colorado in northeastern Utah. This multiple-purpose project will provide irrigation water to about 28,540 acres of new land, a supplemental supply for about 132,000 acres, and furnish about 49,000 acre-feet of municipal water. Principal features of the project are Strawberry aqueduct, Strawberry Reservoir enlargement, powerplants with combined installed capacity of 61,000 kilowatts, and other regulating reservoirs, aqueducts, canals, and distribution systems. The initial phase of this comprehensive development will also provide flood control, recreation and forest resource development. The Vernal unit is now under construction.

Authorization.—Act of April 11, 1956 (70 Stat. 105).

Cost of investigations

Total estimated cost preconstruction planning		$3,708,000
Estimated cost to June 30, 1960		2,225,528
Fiscal year 1961 program		410,000
Planning allocation	$400,600	
Stores on hand, etc	9,400	
Balance to complete		1,072,472
Total estimated project cost, exclusive of Vernal Unit		228,894,000

Fiscal year 1961 program.—The program for fiscal year 1961 will provide for the continuation of the detailed preconstruction studies leading to completion of the definite plan report by the end of fiscal year 1963.

Justification.—The plan for the central Utah project was developed to meet the pressing needs for water and electrical energy in the Bonneville and Uinta Basins. Largely as a result of the industrial expansion, the population of the Bonneville Basin portion of the project area increased 29 percent from 1940 to 1950 and has continued to grow at a rapid rate. The area's demand for food and for municipal, industrial, and miscellaneous water supplies has increased accordingly. Although the basin contains vast areas of rich alluvial soil, irrigation is generally required to mature crops and the flow of small local streams falls far short of irrigation requirements. Importation of a substantial amount of water into the basin is essential to the basin's agricultural and industrial expansion. Furthermore, without the importation contemplated under the project, future municipal and industrial expansion in Salt Lake City and areas to the south will require a reduction in the use of water for irrigation. The Uinta Basin also has experienced a water shortage and is in need of an additional regulated water supply. This area is important as a milk and livestock supplier for the rapidly growing Bonneville Basin and reduction of its capacity to produce these important agricultural products will have a direct detrimental effect on the general economic status of the State. Along with this rapid population and industrial expansion, there is developing a pressing need for additional electrical power.

EMERY COUNTY PROJECT, UTAH

Location and description.—The Emery County project is located in the upper Colorado River Basin on the eastern slope of the Wasatch Mountains in the vicinity of Huntington, Castledale, and Orangeville in central Utah. This project would involve construction of Joes Valley Dam and Reservoir, a diversion dam, canals, laterals and drains. It would provide a supplemental water supply for irrigation of 20,450 acres now inadequately irrigated and full supply for irrigation of 3,630 acres of new land.

Authorization.—Act of April 11, 1956 (70 Stat. 105).

Cost of investigations

Total estimated cost preconstruction planning		$342,300
Estimated cost to June 30, 1960		220,188
Fiscal year 1961 program		110,180
Planning allocation	$107,600	
Stores on hand, etc	2,580	
Balance to complete		11,932
Total estimated project cost		9,913,000

Fiscal year 1961 program.—The detailed preconstruction studies of the Emery County project will be well advanced by the end of fiscal year 1960 and the program for fiscal year 1961 will provide for completion of those studies and preparation of the definite plan report.

Justification.—Development of a dependable irrigation water supply to improve local economic conditions and provide for normal growth in future years is the greatest need of the Emery County project area. The present variable water supply fails to meet the late-season requirements of lands now under irrigation, and 3,630 acres of arable land under existing canals lie idle for lack of water. Crops often fail to mature fully and in drought years serious crop failures are experienced after much of the production cost is already incurred. Many of the farm units are small and more than half of the farmers, not being able to meet operating expenses and provide support for their families, are forced to supplement their farm incomes with part-time employment. The project is needed to increase and stabilize the production of feed crops and thus support the local livestock industry, to increase the average acreage of productive land per farm, and otherwise increase incomes in order that farmers may maintain more suitable living standards.

LA BARGE PROJECT, WYOMING

Location and description.—The La Barge project is located on the Green River in southwestern Wyoming in the vicinity of the town of La Barge. The project would involve a canal making direct diversions from the Green River and a system of laterals to provide a full supply of irrigation water for some 8,000 acres of new land.

Authorization.—Act of April 11, 1956 (70 Stat. 105).

Cost of investigations

Total estimated cost preconstruction planning		$257,000
Estimated cost to June 30, 1960		195,234
Fiscal year 1961 program		54,604
Planning allocation	$53,350	
Stores on hand, etc	1,254	
Balance to complete		7,162
Total estimated project cost		1,816,000

Fiscal year 1961 program.—The fiscal year 1961 program will provide for completion of the detailed engineering and economic studies and preparation of the definite plan report.

Justification.—Coal mining, oil production, and livestock raising are the major industries in Lincoln and Sublette Counties. Coal production has declined materially in recent years, however, because of advances made by competitive fuels. Sheep and cattle raising is being restricted to avoid overuse of the range. These developments have seriously weakened the economy of the area. The La Barge

project not only would provide food and fiber to meet the needs of the expanding population of the Nation but also would supplement the basin's income and provide settlement opportunities. This would offset in part of the effect of the declining trend in industries which have heretofore supported the area, and would contribute substantially toward stabilizing the local economy.

LYMAN PROJECT, WYOMING

Location and description.—The Lyman project is located along the Green River in southwestern Wyoming near the town of Lyman. The project would involve a dam and reservoir, a water collection system, canals, laterals and drains. It would provide a supplemental water supply for 39,700 acres of presently irrigated land.

Authorization.—Act of April 11, 1956 (70 Stat. 105).

Cost of investigations

Total estimated cost preconstruction planning		$684,000
Estimated cost to June 30, 1960		450,012
Fiscal year 1961 program		186,827
Planning allocation	$182,520	
Stores on hand, etc	4,307	
Balance to complete		47,161
Total estimated project cost		11,436,000

Fiscal year 1961 program.—The fiscal year 1961 program will make it possible to complete detailed land classification and engineering surveys, and to initiate designs and estimates as required for completion of a definite plan report in fiscal year 1962.

Justification.—The economy of the Lyman project area is based almost entirely on a livestock industry and the production of livestock feed. Supplemental livestock feed cannot be produced by dry farming as precipitation averages only about 10.5 inches a year, about half of which occurs during the nongrowing season. Furthermore, the late season natural streamflows are not adequate for the land now irrigated and severe shortages are experienced practically every year. As a result, the livestock industry is severely restricted and the local economy has suffered accordingly. Additional late-season water is needed to bolster the livestock industry and local economy.

SILT PROJECT, COLORADO

Location and description.—The Silt project is located on Rifle Creek in Garfield County in west-central Colorado. It will involve construction of a storage dam and reservoir, canals and laterals to provide a full water supply for 1,900 acres of new land and supplemental water for some 5,300 acres of presently irrigated land.

Authorization.—Act of April 11, 1956 (70 Stat. 105).

Cost of investigations

Total estimated cost preconstruction planning		$323,000
Estimated cost to June 30, 1960		215,022
Fiscal year 1961 program		97,694
Planning allocation	$95,450	
Stores on hand, etc	2,244	
Balance to complete		10,284
Total estimated project cost		3,548,000

Fiscal year 1961 program.—The fiscal year 1961 program will be used to complete the designs and estimates, water supply studies, and other engineering and economic analyses and to prepare the definite plan report.

Justification.—The economy of the project area is based primarily on agriculture. Except for the lands holding senior water rights, however, the lands suffer extreme water shortages after June each year. A supplemental water supply is urgently needed to provide late-season water for maturing of crops. This would materially strengthen the economy of the area.

QUALITY OF WATER STUDIES

Location and description.—The objective of these studies is to evaluate the effect of storage and consumptive use of water in the Upper Colorado River Basin on the quality of water of the Colorado River.

Authorization.—Act of April 11, 1956 (70 Stat. 105).

Cost of investigations

Total estimated cost preconstruction planning		$1,100,000
Estimated cost to June 30, 1960		102,565
Fiscal year 1961 program		54,000
Planning allocation	$52,750	
Stores on hand, etc	1,250	
Balance to complete		943,435
Total estimated project cost		Not applicable

Fiscal year 1961 program.—The fiscal year 1961 program will provide for continuation of the quality of water studies.

Justification.—These studies are being made in accordance with the requirements of section 15 of the act of April 11, 1956, which required the Secretary of the Interior "to continue studies and to make a report to the Congress and to the States of Colorado River Basin on the quality of water of the Colorado River."

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Colorado River storage project: Curecanti unit, Colorado	$639,380	$517,489	$75,098	[1] $46,793	
Participating projects:					
Central Utah (initial phase), Utah	3,708,000	1,801,268	424,260	410,000	$1,072,472
Emery County, Utah	342,300	133,546	86,642	110,180	11,932
Florida, Colo.	322,956	296,053	26,903		
La Barge, Wyo.	257,000	110,418	84,816	54,604	7,162
Lyman, Wyo.	684,000	220,555	229,457	186,827	47,161
Seedskadee, Wyo.	1,148,610	1,144,690	3,920		
Silt, Colo.	323,000	194,234	20,788	97,694	10,284
Quality of water	1,100,000	68,417	33,148	54,000	943,435
Adjustments	−2,385,946	−2,388,506	−26,719	−30,671	59,950
Service facilities		175,342	9,300	10,000	−194,642
Stores		1,498	−600	−600	−298
Total expenditures	6,139,300	2,276,004	967,013	938,827	1,957,456
Undelivered orders		6,827	−6,000	−827	
Total obligations	6,139,300	2,282,831	961,013	938,000	1,957,456
Method of financing:					
Appropriation, fiscal year 1960			797,550		
Application of prior year funds			163,463		
Appropriations required				938,000	1,958,000

[1] Fiscal year 1961 program involves investigation of only Crystal Dam, Reservoir, and powerplant.

Mr. RABAUT. No questions.

PARTICIPATING PROJECTS

VERNAL UNIT, UTAH

Vernal unit, $2,189,000. Insert pages 441 through 444. (The pages referred to are as follows:)

PF: 60
(7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Colorado Basin-Northeast Utah in Ashley Valley of the Uintah Basin, Uintah County, approximately centered around Vernal, Utah.

AUTHORIZATION: Initial Phase, Central Utah Project, Act of April 11, 1956 | B/C RATIO 1.2 | Date July 1959

LAND CERTIFICATION: By Secretary October 2, 1958 | DEFINITE PLAN REPORT: Approved by Commissioner August 2, 1957

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 6,343,600	Appropriations to June 30, 1959	$ 1,035,000
Net Property and Other Transfers	612,400	Appropriations for F. Y. 1960	1,050,000
Cash Advances--Non-Federal	*******	Appropriations to Date	2,085,000
Adjustment	1/ 22,000	Initial Underfinancing F. Y. 1960	*******
		Appropriations Required for F. Y. 1961	2,189,000
Total to be Allocated	$ 6,978,000	Balance to Complete after F.Y. 19 61	$ 1,169,600

ALLOCATIONS 4/		REPAYMENT 2/		AMOUNTS PER ACRE			
Irrigation	$ 6,650,000	Amount Repaid by Irrigators	$ 1,500,000	Irrig. Invest. per Acre	$ 412	Payment Capacity - per Acre	$ 2.93
Power	*******	Amount Repaid by Power	*******	Repayment of Investment per acre:		Annual Charges:	
M. & I. Water	1/ 60[illegible],000	Amount Repaid by M. & I. Water	1/ 605,000	By Irrigators	$ 102	O. & M.	$ .86
Ins. Uninums	82,000	Upper Colo.Riv.Basin Fund	4,550,000	By Power Revenues		Construction	2.04
Recreation	93,000	Nonreimb.Invest.CRDF	82,000	By M & I Water Users			
Fish & Wildlife	148,000	Non - Reimbursable	3/ 241,000	Upper Colo.Riv.	310	Total	$ 2.90
Total	$ 1/ 6,978,000	Total	$ 1/ 6,978,000				

STATUS OF REPAYMENT CONTRACT: Contract executed July 14, 1958, with Uintah Water Conservancy District.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Stanaker Dam & Reservoir	37,300 AF	46	3-61				
Fort Thornburgh Div. Dam & Stanaker Feeder Canal	400 cfs	16	3-61				
Pump. or Service Canal & Laterals		10	3-62				
Water Savings Pipe System	17.3 Mi.	7	3-62				
Vernal Area Drainage System		8	6-65				

Acreage Full Supply: — | Supplemental Supply: 14,700 | Total Acres: 14,700 | Power kw: —

Region	Date	Project and State
4	1-18-60	Central Utah Project, Vernal Unit, Utah

BR-441

[1] Includes $22,000 interest during construction based on 3¼ percent interest on reimbursable municipal and industrial water allocation.
[2] Based on repayment contract which results in a 50-year repayment period for irrigation.
[3] Includes $120,000 for cost of recreational and fish and wildlife facilities work for which funds are to be provided from other than Upper Colorado River Basin Fund.
[4] Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$6,123,000	$6,050,000
Municipal and industrial water	677,000	60[illegible],000
Colorado River development fund	82,000	82,000
Recreation	93,000	93,000
Fish and wildlife	26,000	148,000
Total to be allocated	6,981,000	6,978,000

The total to be allocated has been reduced by $3,000 due to recomputing interest during construction on municipal and industrial water at the legal rate of 3¼ percent as compared to a previously estimated rate of 3⅝ percent. The increase in fish and wildlife of $122,000 is comprised of an increase of $1,000 in specific facilities to be built under section 8 of the act of April 11, 19[illegible]6, and a joint cost allocation amounting to $121,000 due to enhancement of fish and wildlife values as permitted by section 6 of the act and the Fish and Wildlife Coordination Act of 19[illegible]8. This caused corresponding reductions in the allocation to irrigation and municipal and industrial water.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.87.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.08.

Agricultural production, present and future

The crops presently grown are alfalfa hay, small grains, and corn primarily for silage. There is a small amount of alfalfa seed being produced. It is anticipated that with project water the same crops will be produced.

JUSTIFICATION

Description.—The project is located in northeast Utah. It is a multipurpose unit of the central Utah project which will furnish a supplemental water supply to provide irrigation to 14,700 acres of partially irrigated lands and 1,600 acre-feet of supplemental water for municipal use, fish and wildlife, and recreation benefits.

Appropriation title.—Upper Colorado River Basin Fund.

Work proposed, fiscal year 1961

Stanaker Dam and Reservoir, $766,408.—The program provides for the completion of this feature so that storage in the reservoir can be initiated in March 1961.

Fort Thornburgh diversion dam and Stanaker feeder canal, $655,436.—For completing these two features in fiscal year 1961 with the diversion of water into Stanaker Reservoir scheduled in March 1961.

Stanaker service canal and laterals, $666,000.—The program provides for the continuation of the construction of these features. The construction is scheduled to be about 70-percent complete by the end of fiscal year 1961.

Water savings pipe system, $122,400.—Acquisition of rights-of-way, issuance of specifications, and award of contract are scheduled.

Vernal area drainage system, $4,000.—Collection of design data will continue during the year.

Service facilities, depreciation, and salvage, —$25,000.—This item represents $10,000 for the purchase of vehicles, which is more than offset by $35,000 of prior costs of service facilities distributed to project features or salvaged.

Consolidated expenditures and credits, —$244.—Represents a minor amount for adjustments.

Change in total obligations

	Obligations
1960 congressional justification	$6,343,600
1961 congressional justification	6,343,600
No change	

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Stanaker Dam and Reservoir	$3,640,000	$790,894	$2,082,698	$766,408	
Fort Thornburgh diversion dam and Stanaker feeder canal	860,000	83,827	120,737	655,436	
Stanaker service canal and laterals	1,210,000	114,808	146,576	666,000	$282,616
Water savings pipe system	374,000	28,001		122,400	223,599
Vernal area drainage system	752,000	56,594	4,000	4,000	687,406
Service facilities, depreciation and salvage		27,178	22,822	−25,000	−25,000
Recreational and fish and wildlife development	120,000				120,000
Consolidated expenditures and credits	−612,400	−461,598	−31,537	−244	−119,021
Total expenditures	6,343,600	639,704	2,345,296	2,189,000	1,169,600
Undelivered orders		329,959	−329,959		
Total obligations	6,343,600	969,663	2,015,337	2,189,000	1,169,600
Method of financing:					
Appropriation, fiscal year 1960			1,950,000		
Application of prior year funds			65,337		
Appropriation required				2,189,000	1,169,600

Mr. RABAUT. No questions.

FLORIDA PROJECT, COLORADO

Florida project, $750,000; insert pages 445 through 449. (The pages referred to are as follows:)

PF: 45
(7-38)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Near Durango, La Plata County, Southwest Colorado in San Juan Basin of Upper Colorado River Basin.

AUTHORIZATION Act of April 11, 1956 | B/C RATIO 1.48 5/ | Date Nov. 1959

LAND CERTIFICATION Scheduled for September, 1960 | DEFINITE PLAN REPORT Submitted to Commissioner, December, 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 10,247,000	Appropriations to June 30, 1959	$
Net Property and Other Transfers	375,000	Appropriations for F. Y. 19 60	
Cash Advances--Non-Federal		Appropriations to Date	
Adjustment		Initial Underfinancing F. Y. 19 60	
		Appropriations Required for F. Y. 19 61	750,000
Total to be Allocated	$ 10,922,000	Balance to Complete after F.Y. 19 61	$ 9,797,000

ALLOCATIONS		REPAYMENT 1/		AMOUNTS PER ACRE			
Irrigation	$ 9,031,000	Amount Repaid by Irrigators	$ 2/1,900,000	Irrig. Invest. per Acre	$ 461	Payment Capacity per Acre	$ 2.85
Power		Amount Repaid by Power		Repayment of Investment per acre:		Annual Charges:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 4/ 98	O. & M.	$ 1.20
Flood & Nav. Cont. & Mi.	176,000	Amount Repaid by Colo. River Basin Fund	7,131,000	By Power Revenues		Construction	1.65
Fish & Wildlife	1,681,000			By M & I Water Users			
Recreation	52,000	Non - Reimbursable	3/1,891,000	By UCRBF	366		
Total	$ 10,922,000	Total	$ 10,922,000			Total	$ 2.85

STATUS OF REPAYMENT CONTRACT: It is expected that negotiations with Florida Water Conservancy District will begin early in calendar year 1960. Contract scheduled for execution in June, 1960, prior to initiation of construction.

PRINCIPAL FEATURES

	Size or Cap.	Completion ≤ 1-1-60	Completion Date	Size or Cap.	Completion ≤ 1-1-60	Completion Date
Lemon Dam and Reservoir	40,300 ac.ft.	0	6-61			
Florida Farmers Diversion Dam		0	10-63			
Canal Enlargements		0	1-63			
Laterals		0	11-63			

Acreage Full Supply 5,730 | Supplemental Supply 13,720 | Total Acres 19,450 | Power kw None

Region	Date	Project and State
4	1-18-60	Florida Project, Colorado

BR-445

[1] Repayment period 50 years.
[2] Includes $300,000 paid from ad valorem tax revenues.
[3] Includes Colorado River development fund, flood control, and fish and wildlife. Also included is cost of recreation facility work to be financed from funds other than Upper Colorado River Basin fund.
[4] Includes an average of $15 per acre paid from ad valorem tax revenues.
[5] Benefit-cost ratio shown on project data sheet is based on 2½ percent interest. Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.79. Benefit-cost ratio based on total benefits and 3 percent interest is 1.28.

Agricultural production present and future

The principal crop at present is alfalfa although some clover, pasture, and small grains are also produced. Little change in this pattern is expected in the future.

JUSTIFICATION

Description.—This is a multipurpose project located in southwestern Colorado near Durango. Lemon Reservoir on Florida River will regulate the flow of the river for irrigation of 19,450 acres of land, including 5,730 acres not previously irrigated and 13,720 acres in need of supplemental water. Regulated releases will be made from the reservoir to the Florida River. A minor part of the released water will be diverted by numerous small ditches that now serve lands in the narrow 25-mile-long river valley below the reservoir. A major part of the released water will be diverted through the existing Florida Canal and the Florida farmers' ditch to lands on Florida Mesa. The diversion dam for the Florida farmers' ditch will be replaced and the upper 4.9 miles of the ditch above its intersection with the Florida Canal will be enlarged. Below the intersection, the Florida Canal will be enlarged for a distance of 1.8 miles and beyond this enlargement a new lateral system will be provided to serve

about 2,210 acres of land. Except for this new lateral system, existing laterals will distribute all project water with minor rehabilitations and extensions being made to serve about 3,520 acres in scattered tracts on Florida Mesa. A fish screen will be installed near the head of the Florida farmers' ditch. No project land drains will be required. Project irrigators are willing to correct inefficient irrigation practices under prior water rights to conserve water for project development. All project lands are privately owned except 785 acres of full irrigation service land that is in Indian ownership or allotments.

Two recreational areas will be developed near the Lemon Reservoir. The reservoir will also provide flood control benefits, will improve conditions for fish and wildlife, and will increase recreational use of the nearby San Juan National Forest.

Appropriation title.—Upper Colorado River Basin Fund.

Work proposed, fiscal year 1961

Lemon Dam and Reservoir, $622,000.—The program provides for collection of design data, acquisition of rights-of-way, preparation of designs and specifications, and award of the contract for the dam.

Florida Farmers' diversion dam, $3,000.—Collection of design data and site exploration work will be started.

Canal enlargements, $70,000.—The program provides for the acquisition of land, collection of field data, and completion of design and specifications for the enlargement of the Florida farmers' ditch and the Florida Canal.

Service facilities, depreciation, and salvage, $25,000.—For the acquisition of automotive, work and laboratory equipment, and office furniture and equipment.

Undelivered orders, $30,000.—Represents the net change in obligations for goods and services on order but not yet received.

Change in total obligations

	Obligations
1960 congressional justification	(1)
1961 congressional justification	$10,547,000

[1] Not included in the fiscal year 1960 congressional justifications.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Lemon Dam and Reservoir	$9,610,000	$264,000	$24,000	$622,000	$8,700,000
Florida farmers' diversion dam	200,000	5,000	500	3,000	191,500
Canal enlargements	650,000	18,000	1,900	70,000	560,100
Canals rehabilitation (advance to water users)	100,000				100,000
Laterals	310,000	9,053	503		300,444
Service facilities, depreciation and salvage				25,000	−25,000
Recreation	52,000				52,000
Consolidated expenditures and credits	−375,000	−296,053	−26,903		−52,044
Total expenditures	10,547,000			720,000	9,827,000
Undelivered orders				30,000	−30,000
Total obligations	10,547,000			750,000	9,797,000
Method of financing: Appropriations required				750,000	9,797,000

Mr. RABAUT. This is another new start, and we would like to have an explanation of it.

Mr. DOMINY. This is a multiple-purpose participating project located in southwestern Colorado near Durango; Lemon Reservoir on the Florida River will regulate the flow of the river for irrigation of 19,450 acres of land, including 5,730 acres not previously irrigated and 13,720 acres in need of supplemental water.

Mr. RABAUT. What is the present status of the repayment contract negotiations?

REPAYMENT

Mr. DOMINY. The district representatives have reviewed copies of the Hammond participating project and Vernal unit, participating project contracts. They are familiar with the type contract we need, and it is anticipated the Florida project contract will be closely patterned after the Smith Fork project. We feel the negotiations started January 15, 1960, will result in a contract shortly.

RECREATION AND FISH AND WILDLIFE

Mr. RABAUT. Please explain the fish and recreation facilities planned on this project.

Mr. DOMINY. May we supply details on that for the record?

Mr. RABAUT. Without objection they may be supplied for the record.

(The information requested follows:)

FISH AND WILDLIFE AND RECREATION FACILITIES PLANNED ON THE FLORIDA PROJECT

The fish facilities included in the project plan consists of a fish screen at the head of Florida farmers ditch, the cost of which is estimated at $30,000.

The recreation facilities planned on this project and the estimates of cost as prepared by the National Park Service are as follows:

Circulatory roads	$14,000
Parking areas	6,000
Barriers	1,500
Boat-launching ramp and moorage	6,000
Picnic units	2,300
Camping sites	2,300
Sanitary facilities	2,600
Water supply	4,000
Signs	200
Contingencies	5,187
Engineering	7,780
Totals	51,867
Rounded	52,000

Mr. RABAUT. Almost 20 percent of the benefits of this project are for fish. Give us some of the details on all these benefits.

Will you supply that too?

Mr. DOMINY. Yes, sir.

(The information requested follows:)

FISH AND WILDLIFE BENEFITS, FLORIDA PROJECT

The allocation of $1,641,000 to fish and wildlife in the Florida project is comprised of two components; namely (1) specific costs of $30,000 representing the estimate for fish screens at reservoirs and diversion points, and (2) $1,611,000 representing the share of the cost of Lemon Dam and Reservoir appropriately

allocable to fish and wildlife. This latter, or joint cost allocation, results from the use of $62,000 in reservoir and stream fishery enhancement benefits in the separable costs-remaining benefits-cost allocation study. It has been estimated by the Bureau of Sport Fisheries and Wildlife that fisherman use of Lemon Reservoir will have a benefit value of $12,000 annually and that increased fisherman use of streams in the project area will have a benefit value of $50,000 annually. The increased fisherman use in streams will be realized because of improved flow conditions that will exist after development and the ability of these flows to support trout populations.

HAMMOND PROJECT, NEW MEXICO

Mr. RABAUT. Hammond project, $1,300,000.
Insert pages 450 through 453.
(The pages referred to are as follows:)

PF-65 (7-58) BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION
Northwestern New Mexico, along the San Juan River and south of Blanco, Bloomfield and Farmington.

AUTHORIZATION Act of April 11, 1956 | B/C RATIO 2.1 | Date March 1958

LAND CERTIFICATION By Secretary November 25, 1959 | DEFINITE PLAN REPORT Approved by Commissioner November 12, 1958

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 2,996,388	Appropriations to June 30, 1959	$
Net Property and Other Transfers	283,612	Appropriations for F. Y. 19 60	298,500
Cash Advances--Non-Federal		Appropriations to Date	298,500
Adjustment		Initial Underfinancing F. Y. 1960	100,000
		Appropriations Required for F. Y. 1961	1,300,000
Total to be Allocated	$ 3,280,000	Balance to Complete after F.Y. 19 61	$ 1,303,888

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 3,174,000	Amount Repaid by Irrigators	$ 450,000	Irrig. Invest. per Acre	$ 814	Payment Capacity per Acre	$ 6.85
Power		Amount Repaid by Power		Repayment of Investment per acre:		Annual Charges:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 115	O. & M.	$ 4.55
Flood & Nav.		Amount Repaid by Colo. River Basin Fund	2,724,000	By Power Revenues		Construction	2.30
Fish & Wildlife	98,000	Non-Reimbursable	1/ 106,000	By M & I Water Users			
CRDF Invest.	8,000			By UCREF	699		
Total	$ 3,280,000	Total	$ 3,280,000			Total	$ 6.85

STATUS OF REPAYMENT CONTRACT: Repayment contract signed by Hammond Conservancy District on October 20, 1959.

PRINCIPAL FEATURES

	(Crest Length)	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Hammond Diversion Dam		120 ft.	9	10-61				
Hammond Pumping Plant		22 cfs	9	12-61				
Main Canal		29.0 mi.	9	1-62				
Laterals and Drains		15.0 mi.	8	4-66	2/			
Perm. Operating Facilities		-	8	11-61				

Acreage Full Supply 3,900 | Supplemental Supply 0 | Total Acres 3,900 | Power kw 0

Region	Date	Project and State
4	1-18-60	Hammond Project - New Mexico

BR-450

[1] Includes $8,000 expended for investigations from nonreimbursable Colorado River development fund, and $98,000 allocated to "Fish and wildlife."
[2] Essentially completed 4-62 except for some remaining drainage construction.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.00.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.88.

Agricultural production present and future

The area without irrigation will not support agricultural crops. Sparse grazing is provided by the native vegetation.

Under project conditions crops will include small grains, hay and forage crops, vegetables and fruits.

JUSTIFICATION

Description.—This is a single-purpose project which will provide a full water supply for 3,900 acres of arid lands in northwestern New Mexico. The project works extend west from Blanco to Farmington along the south bank of the San Juan River. Fish and wildlife benefits will also be provided.

Appropriation title.—Upper Colorado River Basin Fund.

Work proposed, fiscal year 1961

Hammond diversion dam, $222,000.—The program provides for issuance of specifications, acquisition of rights-of-way, and award of contract for the construction of Hammond diversion dam.

Hammond pumping plant, $118,000.—Specifications will be completed for turbine, pumps, and butterfly valves and contracts awarded. The main structure contract will also be awarded.

Main canal, $890,000.—Construction work will be continued on the main canal.

Laterals and drains, $50,000.—The program provides for collection of design data, acquisition of rights-of-way, preparation of designs and specifications, and award of contract for construction of laterals and drains.

Undelivered orders, $20,000.—Represents net change in obligations for goods and services on order not yet received.

Change in total obligations

	Obligations
1960 congressional justification	[1]
1961 congressional justification	$2,996,388

[1] Not included in fiscal year 1960 congressional justification.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Hammond diversion dam	$420,000	$36,000	$25,000	$222,000	$137,000
Hammond pumping plant	320,000	28,000	20,000	118,000	154,000
Main canal	2,200,000	191,612	327,000	890,000	791,388
Laterals and drains	280,000	23,000		50,000	207,000
Permanent operating facilities	60,000	5,000			55,000
Service facilities, depreciation, and salvage			3,000		−3,000
Consolidated expenditures and credits	−283,612	−283,612			
Total expenditures	2,996,388		375,000	1,280,000	1,341,388
Undelivered orders			17,500	20,000	−37,500
Total obligations	2,996,388		392,500	1,300,000	1,303,888
Method of financing:					
Appropriation fiscal year 1960			292,500		
Initial underfinancing fiscal year 1960			100,000		
Appropriations required				1,300,000	1,303,888

Mr. RABAUT. No questions.

PAONIA PROJECT, COLORADO

Paonia project, $903,000. Insert pages 454 through 457. (The pages referred to are as follows:)

(7-65 (7-60))
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Upper Colorado River Basin, West-central Colorado in Delta and Gunnison Counties

AUTHORIZATION: Act of April 11, 1956 | B/C RATIO 2.50 Date Dec. 18, 1959

LAND CERTIFICATION: By Secretary August 21, 1958 | DEFINITE PLAN REPORT: Approved by Commissioner June 25, 1957

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 5,379,451	Appropriations to June 30, 1959	$ 1,026,000
Net Property and Other Transfers	2,267,321	Appropriations for F. Y. 19 60	1,105,375
Cash Advances--Non-Federal	124,220	Appropriations to Date	4,131,375
Adjustment		Initial Underfinancing F. Y. 19 60	--
		Appropriations Required for F. Y. 19 61	903,000
Total to be Allocated	$ 7,770,992	Balance to Complete after F.Y. 1961	$ 345,076

ALLOCATIONS 2/

Irrigation	$ 7,510,440
Advances and Contributions	124,220
Flood & Nav.	72,000
Recreation	7,500
Invest. CRDF	56,832
Total	$ 7,770,992

REPAYMENT 1/

Amount Repaid by Irrigators	$ 2,320,000
Amount Repaid by Power	
Advances and Contributions	124,220
Upper Colo.Riv.Basin Fund	5,190,440
Non-Reimbursable	3/136,332
Total	$ 7,770,992

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 491	Payment Capacity per Acre	$ 3.69
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ 152	O. & M.	$ 1.24
By Power Revenues		Construction	2.23
By M & I Water Users			
By UCRBF	339	Total	$ 3.47

STATUS OF REPAYMENT CONTRACT: Contract executed June 11, 1948, with the North Fork Conservancy District Amendatory Contract No. 14-06-400-668 executed August 21, 1957.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Paonia Dam and Reservoir	21,000 A.F.	50	12-61				
Fire Mountain Diversion Dam	205 cfs	100					
Fire Mountain Canal, 200 cfs	33.5 Mi.	84	3-61				
Project Drains		0	after 66				
Temporary Camp		97	12-61				

Acreage Full Supply 2,230 Supplemental Supply 13,070 Total Acres 15,300 Power kw none

Region	Date	Project and State
4	1-18-60	Paonia Project, Colorado

See attached sheet.

BR-454

1/ Repayment period 68 years.
2/ Changes in allocations:

	Fiscal year 1960 justifications	Fiscal year 1961 justifications
Irrigation	$8,226,600	$7,510,440
Flood control	72,000	72,000
Recreation	7,500	7,500
CRDF	56,805	56,832
Advances	130,000	124,220
Total to be allocated	8,492,905	7,770,992

Total to be allocated decreased because of net reduction in total estimated obligations to be incurred in construction of project plus minor changes in CRDF and advances and contributions to reflect actual data.
3/ Includes Colorado River development fund investigations, flood control, and $7,500 recreation cost which is to be financed from other than Colorado River Basin fund.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 1.22.
Benefit-cost ratio based on total benefits and 3 percent interest is 2.14.

Agricultural production, present and future

Agricultural development in the project area consists of growing fruits, and of crops, including small grains related to the livestock industry. Eighty percent of the irrigated land is utilized for the production of livestock feeds. It is not anticipated that construction of the project will result in any major change to the agricultural pattern that now exists.

JUSTIFICATION

Description.—This is a multipurpose project which will provide a supplemental water supply for irrigation of 13,070 acres and a full water supply for 2,230 acres of new land in west-central Colorado. Benefits to fish and wildlife, recreation, and flood control will also be realized.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed, fiscal year 1961

Paonia Dam and Reservoir, $785,464.—The program provides for the substantial completion of work on the Paonia Dam and Reservoir and highway relocation. Work on reservoir clearing will be completed. A contract will be awarded and work initiated on the installation of an elevator in the outlet works.

Fire Mountain canal, $134,536.—For the completion of all work on the Fire Mountain canal extension and earth lining of various critical points.

Temporary camp, $2,500.—Represents the cost of minor work and maintenance of the existing Government camp.

Service, facilities, depreciation, and salvage, —$19,500.—Represents the net change of service facilities. An estimated $500 will be required for acquisition, and $20,000 of prior costs will be distributed to project features.

Change in total obligations

	Obligations
1960 congressional justification	$6,172,378
1961 congressional justification	5,503,671
Decrease	668,707

The change is principally due to a reduction of $1,070,000 on the Paonia Dam and Reservoir because of bid lower than estimated and a net decrease of $92,508 due to miscellaneous adjustments, partially offset by an increase in the estimate of noncontract costs of $413,801 to reflect current data; and the inclusion of project drains totaling $80,000, formerly omitted from the estimate.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Paonia Dam and Reservoir	$5,645,000	$1,486,414	$3,057,375	$785,464	$315,747
Fire Mountain diversion dam	129,489	129,489			
Fire Mountain canal	1,890,209	1,548,007	207,666	134,536	
Project drains	80,000				80,000
Temporary camp	225,322	217,705	3,500	2,500	1,617
Service facilities depreciation and salvage	−225,322	−22,581	−500	−19,500	−182,741
Investigation of abandoned work	18,794	18,794			
Recreation	7,500				7,500
Consolidated expenditures and credits	−2,267,321	−2,377,274	−13,000		122,953
Total expenditures	5,503,671	1,000,554	3,255,041	903,000	345,076
Undelivered orders		43,196	−43,196		
Total obligations	5,503,671	1,043,750	3,211,845	903,000	345,076
Method of financing:					
Appropriation, fiscal year 1960			3,105,375		
Advances, non-Federal			65,000		
Application of prior-year funds			41,470		
Appropriations required				903,000	345,076

Mr. RABAUT. No questions.

SEEDSKADEE PROJECT, WYOMING

Seedskadee project, $5 million.
Insert pages 458 through 463.
(The pages referred to are as follows:)

PF-65
7-58)
BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION Colorado River Basin on the Green River in southwestern Wyoming in Sweetwater and Lincoln counties near Green River, Wyoming

AUTHORIZATION Act of April 11, 1956 (70 Stat. 105) | B/C RATIO 1.41 | Date April 1959

LAND CERTIFICATION By Secretary November 13, 1959 | DEFINITE PLAN REPORT May 20, 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 36,808,367	Appropriations to June 30, 19 59	$
Net Property and Other Transfers	1,710,933	Appropriations for F. Y. 19 60	1,154,400
Cash Advances--Non-Federal		Appropriations to Date	1,154,400
Adjustment		Initial Underfinancing F. Y. 19 60	
		Appropriations Required for F. Y. 19 61	5,000,000
Total to be Allocated	$ 38,519,300	Balance to Complete after F.Y. 1961	$ 30,653,967

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 36,097,000	Amount Repaid by Irrigators	$ 7,200,000	Irrig. Invest. per Acre	$ 614	Payment Capacity per Acre	$ 5.30
CRDF	411,000	Amount Repaid by Power		Repayment of Investment per acre:		Annual Charges:	
M. & I. Water		Amount Repaid by M. & I. Water		By Irrigators	$ 122	O. & M.	$ 2.85
Fish & Wildlife	1,826,000	Upper Colorado River Basin Fund	28,897,000	By Power Revenues		Construction	2.45
Recreation	185,300	CRDF (Nonreimbursable)	411,000	By M & I Water Users			
Total	$ 38,519,300	Non - Reimbursable	1/ 2,011,300	U.C.R.B.F.	492	Total	$ 5.30
		Total	$ 38,519,300				

STATUS OF REPAYMENT CONTRACT: Substantial portions of lands are owned by the United States; accordingly, repayment contract will not be required prior to construction. Repayment contract negotiation and execution are scheduled prior to completion of development period for first irrigation block.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Fontenelle Dam and Reservoir	285,000 AF	3	6-64	Drains	219.0 Mi.	0	5-71
Upper West Side Pumping Plant	80 CFS	3	6-63	Community Pasture	4,255 AC.	0	6-73
Lower West Side Pumping Plant	120 CFS	3	6-64	Permanent Oper. Facilities		0	6-73
West Side Canal & Laterals	33,856 AC.	3	6-66	Permanent Camp		0	6-73
East Side Canal & Laterals	10,404 AC.	3	9-66	Temporary Camp		0	6-62
Big Sandy Canal & Laterals	14,515 AC.	3	5-68				

Acreage Full Supply 58,775 | Supplemental Supply None | Total Acres 58,775 | Power kw None

Region	Date	Project and State
4	1/18/60	Seedskadee Project, Wyoming

BR-458

1/ Consists of fish and wildlife and recreation costs. Of this amount, $1,355,300 will be financed from other than Upper Colorado River Basin fund.

NOTE.—Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.69.
Benefit-cost ratio based on total benefits and 3 percent interest is 1.22.

Agricultural production present and future

The Seedskadee project at the present time is an arid undeveloped rangeland area. With the coming of irrigation, the principal agricultural products will be hay, pasture, small grains, sheep, dairy cows, and beef cattle.

JUSTIFICATION

Description.—This project is located on the Green River in southwestern Wyoming. The primary purpose of the project is to provide a full water supply for 58,775 acres. Recreation and fish and wildlife protection are other purposes of the project.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed, fiscal year 1961

Fontenelle Dam and Reservoir, $3,074,956.—This amount provides for award of contracts for construction of the dam, highway relocation, oil line relocation, reservoir clearing and for right-of-way purchases.

Upper west side pumping plant, $315,000.—The program provides for collection of design data, preparation of designs and specifications and the award of contract for the pumping plant.

Lower west side pumping plant, $36,000.—The program provides for initiation of collection of field data.

West side canal and laterals, $495,000.—Provides for the completion of field data and designs and specifications, and award of contract on the first reach of the canal.

East side canal and laterals, $5,000.—For studies of project features scheduled for construction in subsequent years.

Big Sandy canal and laterals, $11,000.—For studies of project features scheduled for construction in subsequent years.

Drains, $14,000.—For studies of project features scheduled for construction in subsequent years.

Permanent operating facilities, $136,575.—This amount will provide for the continuation of construction of the permanent project headquarters and service buildings, which are to be used by construction forces during the construction of the project.

Permanent camp, $274,200.—Provides for continued construction of housing facilities and camp access road. These facilities which will be used by construction forces and later for operation and maintenance personnel are as follows:

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
3-bedroom houses (20)	$380,000		$31,000	$192,500	$156,500
Streets, utilities, landscaping	130,000		46,000	58,200	25,800
Access road	45,000		21,500	23,500	
Total	555,000		98,500	274,200	182,300

Temporary camp, $256,540.—The program provides for the contract earnings on the contracts for the construction of the temporary construction camp. Details of the current and budget year fund requirements are as follows:

Item	Total estimate	June 30, 1959	Fiscal year 1960	Fiscal year 1961	Balance to complete
Transa houses (45) and trailers (10)	$469,000		$57,000	$120,540	$291,460
Streets, utilities, miscellaneous	347,000		183,000	136,000	28,000
Total	816,000		240,000	256,540	319,460

Service facilities, depreciation, and salvage, $55,954.—For the completion of construction of a temporary warehouse and laboratory and the purchase of automotive and other work equipment all totaling $84,865 offset in part by the distribution of $28,911 of prior year costs of service and camp facilities to the permanent properties.

Other project costs, $25,000.—For continuation of the land-purchase program.

Consolidated expenditures and credits, $10,000.—Represents $35,000 for the purchase of stores items which will be partially offset by $25,000 of stores items that will be used in the project features during the year.

Undelivered orders, $290,775.—Represents the net change in obligations for goods and services on order but not yet received.

Change in total obligations:	***Obligations***
1960 congressional justification	[1]
1961 congressional justification	$36,808,367

[1] **Not included in the fiscal year 1960 congressional justification.**

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Fontenelle Dam and Reservoir	$11,828,000	$346,433	$412,500	$3,074,956	$7,994,111
Upper West Side pumping plant	1,012,000	31,400	.....	315,000	665,600
Lower West Side pumping plant	917,000	28,075	.....	36,000	852,925
West Side canal and laterals	11,880,000	405,680	179,500	495,000	10,799,810
East Side canal and laterals	1,440,000	57,400	.....	5,000	1,377,600
Big Sandy canal and laterals	4,308,000	138,800	.....	11,000	4,158,200
Drains	4,368,000	137,727	.....	14,000	4,216,273
Community pasture	370,000	.....	.....	.....	370,000
Permanent operating facilities	403,000	.....	75,425	136,575	191,000
Permanent camp	555,000	.....	98,500	274,200	182,300
Temporary camp	816,000	.....	240,000	256,540	319,460
Service facilities, depreciation and salvage	−1,183,000	.....	94,325	55,954	−1,333,279
Other project costs	450,000	.....	25,000	25,000	400,000
Recreation and fish and wildlife	1,355,300	.....	.....	.....	1,355,300
Consolidated expenditures and credits	−1,710,933	−1,145,525	23,000	10,000	−598,408
Total expenditures	36,808,367	.....	1,148,250	4,709,225	30,950,892
Undelivered orders	.....	.....	6,150	290,775	−296,925
Total obligations	36,808,367	.....	1,154,400	5,000,000	30,653,967
Method of financing:					
Appropriation, fiscal year 1960	.....	.....	1,154,400	.....	.....
Appropriations required	.....	.....	.....	5,000,000	30,653,967

Mr. RABAUT. The committee has not had this project presented in detail before. We would be pleased to have you explain it.

Mr. DOMINY. Well, we did go into it to some extent last year. This is one of the participating projects of the Colorado storage project, and is the principal participating project as far as Wyoming is concerned. It would bring into irrigation a sizable area of public land interspersed with checkerboarded land owned by the Union Pacific Railroad and our proposal is to exchange the lands within the project area owned by the railroad with other public lands outside the project area so that all of the lands would be available for settlement.

Mr. RABAUT. Are you having any problems on this project?

TRONA MINING

Mr. DOMINY. We are. As I mentioned briefly on the opening day of the session, you will recall, about the discovery of trona underlying lands of this project. I can assure the committee that we will not actually award contracts to get underway here until we have worked out a satisfactory compatability arrangement between irrigation and trona mining.

Mr. RABAUT. Inasmuch as you are having this little problem that you have there, are you going to need this $5 million this year?

Mr. DOMINY. We would, if we are able to work out this problem at an early date. If we can't work it out within the next 3 or 4 months, we wouldn't be needing all of the money requested; no, sir.

Mr. RABAUT. How much would you need if you couldn't work out the problem?

Mr. DOMINY. Assuming we are held up as much as 4 or 5 months, this justificatiton for fiscal year 1961 could be reduced by about 40 percent.

REPAYMENT

Mr. PILLION. On the last project I note there is only $7 million to be repaid here by the irrigators out of a total of $36 million.

Now $28 million is to be paid out of the Colorado River Basin fund. That will be paid by higher electric rates, won't it?

Mr. DOMINY. It will be paid by the power revenues; yes, sir.

Mr. PILLION. So you have a situation where you are putting more acreage into production of agricultural surpluses, again, and only $7 million being repaid and this does not add any power to the area, does it?

Mr. BENNETT. There is no power in this project.

Mr. PILLION. I just want to note that the costs here, Mr. Chairman, will amount to $614 per irrigated acre. And that is just for the irrigation feature of it. If you took the total, it would run to 7 times that, or about $4,000 per acre.

Mr. DOMINY. This figure is the total for the Seedskadee project, including the dams, the laterals, the drains, and so forth.

Mr. PILLION. I think that statement was in error. Thank you.

SMITH FORK PROJECT, COLORADO

Mr. RABAUT. The Smith Fork project, $1,500,000. Insert pages 464 through 467.

(The pages referred to are as follows:)

PF-65 (7-58) BUREAU OF RECLAMATION

PROJECT DATA SHEET

LOCATION: Upper Colorado River Basin, West-central Colorado in Delta County

AUTHORIZATION: Act of April 11, 1956 — B/C RATIO 1.09 — Date Dec 18, 1959

LAND CERTIFICATION: December 4, 1959 — DEFINITE PLAN REPORT: Submitted May, 1959

SUMMARIZED FINANCIAL DATA

Total Federal Obligations	$ 4,200,078	Appropriations to June 30, 1959	$ .....
Net Property and Other Transfers	219,922	Appropriations for F. Y. 1960	350,500
Cash Advances--Non-Federal		Appropriations to Date	350,500
Adjustment		Initial Underfinancing F. Y. 1960	75,000
		Appropriations Required for F. Y. 1961	1,500,000
Total to be Allocated	$ 4,420,000	Balance to Complete after F.Y. 19 61	$ 2,274,578

ALLOCATIONS

Irrigation	$ 1,122,000
Power	
M. & I. Water	
CRDF	72,000
Fish & Wildlife	127,000
Recreation	29,000
Total	$ 4,420,000

REPAYMENT [1]

Amount Repaid by Irrigators	[2] $ 1,025,000
Amount Repaid by Power	
Amount Repaid by M. & I. Water	
Upper Colo. Riv. Basin Fund	3,097,000
Non - Reimbursable	[3] 298,000
Total	$ 4,420,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 500	Payment Capacity per Acre	$ 3.82
Repayment of Investment per acre:		Annual Charges:	
By Irrigators	$ [4] 124	O. & M.	$ 1.70
By Power Revenues		Construction	2.12
By M & I Water Users			
By UCRBF	376	Total	$ 3.82

STATUS OF REPAYMENT CONTRACT: Expected to be executed and validated by April 1960.

PRINCIPAL FEATURES

	Size or Cap.	Completion % 1-1-60	Completion Date		Size or Cap.	Completion % 1-1-60	Completion Date
Crawford Dam and Reservoir	13,650 A.F.	5/6	12-62				
Smith Fork Feeder Canal and Diversion Dam	2.7 Mi.	6	9-62				
Aspen Canal	6.6 Mi.	6	9-62				
Project Drains		5	1966				
Permanent Operating Facilities		2	11-60				
Recreation Camp		0	12-62				

Acreage Full Supply 1,320 — Supplemental Supply 6,920 — Total Acres 8,240 — Power kw none

Region	Date	Project and State
4	1-18-60	Smith Fork Project, Colorado

BR-464

[1] Repayment period, 50 years.
[2] Includes $150,000 paid from ad valorem tax revenues.
[3] Includes Colorado River development fund and fish and wildlife. Also included is cost of recreation facility work to be financed from funds other than Upper Colorado River Basin fund.
[4] Includes an average of $18 per acre paid from ad valorem tax revenues.
[5] Work accomplished to Jan. 1, 1960, consists of investigations and advance planning.

NOTE.--Benefit-cost ratio shown on Project Data Sheet is based on 2½ percent interest.
Benefit-cost ratio based on direct benefits only and 2½ percent interest is 0.79.
Benefit-cost ratio based on total benefits and 3 percent interest is 0.95.

Agricultural production present and future

Agriculture in the project area consists primarily of the production of livestock, livestock products, and livestock feed. Ninety-seven percent of the irrigated lands are utilized for the production of livestock feeds. It is not anticipated that construction of the project will result in any major change in the agricultural pattern which now exists.

JUSTIFICATION

Description.—The purpose of the project is to provide water for the irrigation of 6,920 acres of land now inadequately irrigated, and 1,320 acres of new land. Fish and wildlife and recreational benefits will also be provided.

Appropriation title.—Upper Colorado River Basin fund.

Work proposed, fiscal year 1961

Crawford Dam and Reservoir, $1,173,000.—For continued progress under the construction contract on this feature and related work.

Smith Fork feeder canal and diversion dam, $173,000.—The program provides for the acquisition of land, completion of designs and specifications and award of contract on the feeder canal and diversion dam.

Aspen Canal, $144,000.—Provides for the acquisition of land, completion of designs and specifications, and award of contract on the canal.

Permanent operating facilities, $8,500.—This amount will provide for a permanent warehouse and garage building which will be used during construction and then turned over to the water users for operation and maintenance facilities.

Temporary camp, $7,500.—Represents completion of purchase of eight trailers.

Service facilities, depreciation and salvage, —$6,000.—New acquisitions in the amount of $2,600 will be required offset by a distribution of $8,600 of prior year costs to project features.

Changes in total obligations

	Obligations
1960 congressional justification	([1])
1961 congressional justification	$4,200,078

[1] Not included in fiscal year 1960 congressional justification.

Schedule of construction program, fiscal years 1960 and 1961

Program item	Estimated total	Total to June 30, 1959	Program, current year 1960	Program, budget year 1961	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
Construction program:					
Crawford Dam and Reservoir	$3,275,000	$150,800	$389,500	$1,173,000	$1,561,700
Smith Fork feeder canal and diversion dam	345,000	15,900	20,000	173,000	136,100
Aspen Canal	721,000	33,222	8,000	144,000	535,778
Project drains	41,000				41,000
Permanent operating facilities	9,000		500	8,500	
Temporary camp	17,300		7,900	7,500	1,900
Service facilities depreciation and salvage	−17,300		−400	−6,000	−10,900
Recreation	29,000				29,000
Consolidated expenditures and credits	−219,922	−199,922			−20,000
Total expenditures	4,200,078		425,500	1,500,000	2,274,578
Total obligations	4,200,078		425,500	1,500,000	2,274,578
Method of financing:					
Appropriation, fiscal year 1960			350,500		
Initial underfinancing, fiscal year 1960			75,000		
Appropriation required				1,500,000	2,274,578

Mr. RABAUT. This is a relatively new project to the committee and it has a very marginal benefit-cost ratio of 1.09 to 1.

Would you explain it for us, please?

Mr. DOMINY. This is a small participating project on the western slope of Colorado to provide water for the irrigation of 6,920 acres of land now inadequately watered, and to 1,320 acres of new land.

This is a project designed primarily, Mr. Chairman, to aid and assist an irrigation area that was developed originally by private capital and where they do not have an adequate water supply and their economy, therefore, is somewhat hazardous.

It is the kind of undertaking that was clearly anticipated as part of the Colorado Basin project to improve the general economy of the area.

Mr. RABAUT. What is the current status of the repayment contract negotiations?

Mr. DOMINY. This contract has been negotiated and approved by both the irrigation district officials and the Secretary of the Interior and it will now go back for actual execution by the district.

Mr. RABAUT. What is the total of the funds that will have been obligated by the end of this fiscal year?

Mr. DOMINY. We anticipate awarding the construction contract in August 1961, for the Crawford Dam and Reservoir, and the program for this year was to do the engineering and design work. We are going to obligate in carrying out that work all of the money we had available to us, sir.

We are not anticipating any carryovers so we would have obligated the $350,500.

Mr. RABAUT. Are there any further questions on this?

Mr. EVINS. Mr. Chairman, could I ask one unanimous consent request?

Mr. RABAUT. Certainly.

SALE OF GENERATORS TO GOVERNMENT

Mr. EVINS. In connection with our discussion of the Corps of Engineer's receipt of bids on generators.

Mr. RABAUT. Corps of Engineers?

Mr. EVINS. Yes. I am asking unanimous consent to have a statement by the Department of Justice placed in the record in connection with the testimony of General Whipple. We asked him to supply for the record any evidence of collusion or price fixing and we have here a statement by Attorney General Rogers of February 16 in which three major companies are indicated for price fixing in the sale of generators to the Bureau of Reclamation, to the Corps of Engineers and other power-supplying agencies.

This testimony applies to the testimony of General Whipple. It charges some 35 occasions in which these companies met together to discuss prices and allocate bids to the Government.

Mr. RABAUT. Without objection, it will be placed in the record at the place requested.

The committee stands adjourned until 2 o'clock this afternoon.

General Administrative Expenses

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Departmental and Denver offices	$2,424,343	$2,482,764	$2,508,000
2. Regional offices	1,894,695	1,811,941	1,812,000
Total program costs	4,319,038	4,294,705	4,320,000
3. Relation of costs to obligations:			
Costs financed from obligations of other years, net (−)		−4,705	
Obligations incurred for costs of other years, net	12,128		
Total program (obligations)	4,331,166	4,290,000	4,320,000
Financing:			
1959 appropriation available in 1958	6,795		
Unobligated balance no longer available	43,639		
Appropriation (new obligational authority)	4,381,600	4,290,000	4,320,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	480	462	464
Full-time equivalent of all other positions	4	4	4
Average number of all employees	466	456	462
Number of employees at end of year	468	457	461
Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
Average salary of ungraded positions	$5,228	$5,412	$5,481
01 Personal services:			
Permanent positions	$3,592,405	$3,515,953	$3,567,640
Positions other than permanent	19,790	18,915	18,005
Other personal services	17,742	58,944	29,618
Total personal services	3,629,937	3,593,812	3,615,263
02 Travel	176,260	161,460	162,410
03 Transportation of things	16,884	21,310	20,175
04 Communication services	68,614	69,810	65,885
05 Rents and utility services	4,897	4,860	5,180
06 Printing and reproduction	36,229	37,050	32,860
07 Other contractual services	35,669	42,479	71,185
Services performed by other agencies	30,608	33,260	36,280
08 Supplies and materials	54,883	56,860	48,200
09 Equipment	38,968	32,663	24,687
11 Grants, subsidies, and contributions	229,629	220,501	221,960
13 Refunds, awards, and indemnities	14,805	15,380	15,360
15 Taxes and assessments	578	555	555
1959 appropriation available in 1958	−6,795		
Total obligations	4,331,166	4,290,000	4,320,000

Mr. RABAUT. Now we will take up "General administrative expenses, $4,320,000." Insert pages 70 through 75.

(The pages above referred to are as follows:)

GENERAL ADMINISTRATIVE EXPENSES

Appropriation Act, 1960	$4,290,000
Decreases: None	----------
Base, 1961	4,290,000
Increases:	
1. Commissioner's Office, Washington, D.C.	29,600
2. Regional offices	400
Total	30,000
Budget estimate, 1961	4,320,000

Analyses by activity

Activity	Appropriation 1960	Decreases	Increases	1961
1. Commissioner's offices in Washington, D.C., and Denver, Colo.	$2,478,400		$29,600	$2,508,000
2. Regional offices	1,811,600		400	1,812,000
Total	4,290,000		30,000	4,320,000

JUSTIFICATION

The Bureau is requesting an appropriation of $4,320,000 to finance its general administrative expenses during fiscal year 1961. This is $30,000 more than was appropriated for fiscal year 1960. The appropriation requested represents 1.4 percent of the total appropriations being requested by the Bureau for all purposes during the year. This percentage compares with the 1.7 percent allowed in 1960.

The general administrative expenses appropriation finances the overall administrative direction of the Bureau's programs. This includes the formulation and implementation of policies, standards, criteria, and similar managerial activities which are not for the benefit of any individual project, in connection with investigation of potential projects, construction, and rehabilitation of new and existing projects including work programed in the Upper Colorado River Basin, operation and maintenance of completed facilities, administration of the loan program for construction of reclamation facilities by local interests and other work authorized by Congress related to the reclamation program. In the Factfinder's Act of 1925, and subsequent amendments thereto, the Congress recognized the necessity of such overall administrative work and authorized the appropriation of nonreimbursable funds to finance the activities.

In recent years appropriation for general administrative expenses have not kept pace with the Bureau's growing responsibilities. In 1925 at the time of the enactment of the Factfinder's Act, the Bureau had an investment in plant and equipment of $161 million. Today the investment totals over $3.3 billion and by the beginning of fiscal year 1961 the investment will have exceeded $3.5 billion. In 1951 when the total investment in plant and equipment was $1,950 million, the appropriation for general administrative expenses was $7,200,000. By fiscal year 1961, there will be over a billion and a half dollars more invested in Bureau facilities than in 1951. Since the Bureau is responsible for the maintenance and protection of the Government's investment in these facilities, this increase has a direct bearing on the fund requirements of the general administrative expense activity. In fiscal year 1961, the Bureau will administer an overall program that exceeds the immediate prior years. This includes the burden of administration of the projects operated in whole or part by water

users and hundreds of separate water contractors maintaining working arrangements with the Bureau; this burden has in no way lessened and what changes have occurred serve to increase the administrative tasks. In the case of power and transmission facilities permanently operated by the Bureau, there is a continuing administrative function, and there are a large and growing number of power marketing contracts which require administrative action throughout the year.

In general, the functions and activities of an overall management nature not directly benefiting individual projects and therefore chargeable to nonreimbursable general administrative expenses appropriations are:

(1) Direction of the several programs of the Bureau.

(2) Determination of policy standards and performance requirements.

(3) Development of procedures for review and control of the Bureau's program.

(4) Overall supervision of methods and objectives.

(5) Coordination of the overall phases of the Bureau's engineering and administrative activities.

(6) Coordination of the Bureau's programs with the programs of other agencies, public and private, having interests in the same areas of conservation and resource development.

(7) Management review of projects turned over to the water users.

(8) Justification of appropriation estimates and requests to the Bureau of the Budget and the Congress, and liaison with the central agencies.

In meeting the responsibilities developed by these criteria, practically all costs of the Commissioner's Office in Washington are financed by this appropriation. In addition, part of the cost of the Commissioner's offices in Denver and the general administrative work in the regional offices are also met from the general administrative expense appropriation. The increasing burden involved in the administration of the Bureau's expanding plant and the other problems associated with the overall supervision of the Bureau's programs create serious administrative problems, including financing of the offices responsible for handling these matters.

COMMISSIONER'S OFFICES IN WASHINGTON AND DENVER

The estimate of $4,320,000 includes $2,508,000 for the Commissioner's offices in Washington, D.C., and Denver, Colo. This is $29,600 more than was allocated to these offices in fiscal year 1960 and was allowed to meet the estimated additional expenses to be incurred under the Federal Employees Health Benefit Act of 1959, and other minor increased administrative costs. These funds will be used to finance the previously described overall administrative and nonproject activities of these offices.

The major portion of the expense required to maintain the Commissioner's office in Denver, Colo., is incurred in rendering technical assistance and services to field offices, projects, and activities, and is financed separate and apart from the general administrative expense appropriation. In fiscal year 1961, as heretofore, these services will be financed by transfer of funds from project and activity allotments on a program basis. The appropriations required for these transfers are included in the project activity estimates for the fiscal year. A majority of such funds will be transferred from the construction and rehabilitation and the Upper Colorado River Basin fund appropriations, although some funds will be transferred from the operation and maintenance and general investigations appropriations. The advance of funds will be based on the project or activity program that governs the amount of planning, design, laboratory analysis, and related work which the Denver office will be required to perform directly for each such project or activity.

Bureau construction often is of a scale which requires the engineering design work to extend over a period of years. The activities of the Denver offices, therefore, do not tie directly to the construction program in the field for any given fiscal year. Design work usually precedes construction by a year or more. Year to year increases or decreases in the Bureau's field programs and the changes in Denver do not necessarily coincide in any given year. Services to projects to be performed in the Denver offices during fiscal year 1961 are estimated at $10,183,200.

Regional offices

The regional offices' estimate for general administrative expenses for 1961 is $1,812,000, the same amount as was made available for the current year. On the basis of the present organization this amount approaches minimum requirements only.

In addition to the nonproject administrative responsibilities of the regional office, there are certain types of work, such as construction design and contracting, planning, accounting, etc., required for the direct benefit of a project or other activities which are performed more economically and efficiently on a centralized basis. Where circumstances permit and to avoid duplication of project office staffs, the Bureau detaches the common part of project organizations which it centralizes regionally for the performance of such work. By this procedure the Bureau can supply the skilled services required in the various technical fields at lesser cost to the several projects or activities controlled by the central office.

In addition to the above, the regional offices incur charges to projects for some indirect work on this centralized basis. This course becomes necessary because of two factors: (1) The facilitating services at the regional offices are shared by all beneficiaries, and (2) the need to finance essential administrative services of project benefit to cover the actual workload that must be performed.

Since the centralized project activity work is performed for the benefit of projects, direct and indirect, such work is financed through payments from those projects and activity allotments financing the work programed, and the obligations for this work are included on the schedules of the projects receiving the services. Work of this type in fiscal year 1961 is estimated at $6,988,000.

Itemization of estimate

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (−)
PROGRAM AND FINANCING			
Total obligations, appropriation (new obligational authority)	$4,290,000	$4,320,000	+$30,000
OBJECT CLASSIFICATION			
01 Personal services	3,593,812	3,615,263	+21,451
02 Travel	161,460	162,410	+950
03 Transportation of things	21,310	20,175	−1,135
04 Communication services	69,810	65,885	−3,925
05 Rents and utility services	4,860	5,180	+320
06 Printing and reproduction	37,050	32,860	−4,190
07 Other contractual services	42,479	71,185	+28,706
Services performed by other agencies	33,260	36,280	+3,020
08 Supplies and materials	56,860	48,200	−8,660
09 Equipment	32,663	24,687	−7,976
11 Grants, subsidies and contributions	220,501	221,960	+1,459
13 Refunds, awards, and indemnities	15,380	15,360	−20
15 Taxes and assessments	555	555	
Total obligations	4,290,000	4,320,000	+30,000

Mr. RABAUT. What is the total of the funds that will be available for administration including the funds to be transferred from project accounts and how does it compare to this year's total figure?

Mr. GOLZE. Mr. Chairman, the total that will be used for general administrative expenses and our centralized project activities in 1961 will be $11,308,000. In 1960 the corresponding figure is $10,986,126.

Mr. RABAUT. What accounts for the increase?

Mr. GOLZE. The increase is due primarily to personnel costs which arise from a slightly larger average number of people on the payroll. There will also be a slight increase in the cost of travel.

Mr. DOMINY. But this is identified with an increase in program.

Mr. RABAUT. How much is the difference in the two figures, roughly?

Mr. GOLZE. The difference between the two figures is just about $300,000. But with a $54 million increase in program.

LOAN PROGRAM

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Distribution systems	$2,692,799	$9,557,323	$9,035,222
2. Small projects: Loans	1,775,415	9,907,733	15,372,522
3. Administration	93,158	254,854	220,075
Total program costs	4,561,372	19,719,910	24,627,819
4. Relation of costs to obligations:			
Costs financed from obligations of other years, net (−)		−3,515,181	−5,626,721
Obligations incurred for costs of other years, net	4,951,871		
Total program (obligations)	9,513,243	16,204,729	19,001,098
Financing:			
Unobligated balance brought forward		−5,541,240	−564,098
Unobligated balance transferred from "Construction and rehabilitation" (72 Stat. 1576)	−419,318		
Recovery of prior year obligations	−138,165		
Unobligated balance carried forward	5,541,240	564,098	
Appropriation (new obligational authority)	14,497,000	11,227,587	18,437,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	13	16	17
Average number of all employees	12	19	19
Number of employees at end of year	10	12	13
Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
Average salary of ungraded positions	$5,228	$5,412	$5,481
01 Personal services:			
Permanent positions	$94,267	$144,245	$144,850
Other personal services	367	905	465
Total personal services	94,634	145,150	145,315
02 Travel	5,681	10,240	11,695
03 Transportation of things	117	200	190
04 Communication services	418	720	750
05 Rents and utility services	299	480	455
06 Printing and reproduction	1,571	2,350	2,290
07 Other contractual services	13,677	67,035	47,990
Services performed by other agencies	2,364	41,379	12,440
08 Supplies and materials	1,023	1,880	1,915
09 Equipment	695	980	940
11 Grants, subsidies, and contributions	4,409	8,575	8,440
16 Investments and loans	9,388,355	15,925,740	18,768,708
Total obligations	9,513,243	16,204,729	19,001,098

Mr. RABAUT. We will insert pages 76 through 79 concerning the loan program for which $18,437,000 is requested.

(The pages referred to follow:)

Bureau of Reclamation Loan Program

EXPLANATION OF LANGUAGE CHANGE, FISCAL YEAR 1961

Deletion of language pertaining to contracts contingent upon appropriations

The language provides that contracts for loans under the Distribution System Loans Act of July 4, 1955 (69 Stat. 244), which call for making loans beyond the fiscal year in which the contract is entered into, shall be made contingent upon appropriations.

Since the estimate for fiscal year 1961 completes the full financing of all loans, the language has served its purpose and should, therefore, be deleted.

Summarized financial data

Appropriation, fiscal year 1960	$11,227,587
Estimate of appropriations, fiscal year 1961	18,437,000

JUSTIFICATION

Authorization.—Under Public Law 130, 84th Congress (69 Stat. 244) as amended, the Bureau of Reclamation is authorized to make loans for the construction of irrigation distribution systems on authorized projects, and under Public Law 984, 84th Congress (70 Stat. 1044) as amended, to make loans for the construction, rehabilitation, and betterment of small reclamation projects, both under specific criteria established by the authorizing legislation.

Status.—As of January 30, 1960, the full amount of the required funds has been appropriated for four distribution system loans and seven small project loans. Good progress has been made toward construction of these projects. In addition partial funds sufficient for the first-year's activities for four more small projects loans were appropriated for fiscal year 1960. Five additional small projects loan applications have been approved and forwarded to the Congress. These will complete their 60 days before the committees by March 10, 1960, and will then be eligible for appropriations if no unfavorable committee action is taken. Three other small projects applications have been received and will be processed this session of Congress. A number of other organizations are preparing basic studies for applications for loans that will be submitted in the future.

Funds required, fiscal year 1961, $18,437,000.—Those loans for which partial financing was received in fiscal year 1960 will require the balance of the funds to permit the completion of construction. This will require $7,326,925 as follows:

Santa Ynez River Water Conservation District, California	$2,487,000
Pleasant Valley County Water District, California	1,651,750
Georgetown Divide Public Utility District, California	2,261,175
Jackson Valley Irrigation District, California	927,000

The five additional applications that have been approved and submitted to the Interior and Insular Affairs Committees will be eligible for funds upon completion of committee action. This will require $10,890,000, as follows:

Weber-Box Elder Conservation District, Utah	$302,000
Haights Creek Irrigation Co., Utah	212,000
Donna Irrigation District, Hidalgo County, No. 1, Texas	4,061,000
San Benito County Water Conservation and Flood Control District, California	1,420,000
South San Joaquin Irrigation District, California	4,895,000

Full amounts of loans are requested to avoid problems in our relations with the borrowers in administering the loans during the construction period. In addition, immediate full financing of the loans will permit the local organizations to proceed without the added expense incumbent upon small construction contracts not fully financed in advance.

Funds in the amount of $220,075 will be required for the administration of the loan program. These funds will be used for the investigation of potential loans, the negotiation of contracts and other administrative actions necessary to the program including answering inquiries, explaining technical and legal

requirements to potential applicants and similar activities. These activities must be performed prior to the granting of a loan and therefore require an independent source of financing. Upon execution of a contract for a loan under this program, all costs incurred on that specific proposal to that time, as well as all future costs, will be charged to the organization securing the loan, to be repaid as a part of the loan. Since the authorizing acts make no provision for the collection of funds spent on unsuccessful applications or on generalized administrative functions not assignable to specific completed loans, a portion of these administrative funds, and of all previously appropriated funds used for this purpose, are considered nonreimbursable.

Itemization of estimate

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (−)
PROGRAM AND FINANCING			
Total obligations	$16,204,729	$19,001,098	+$2,796,369
Unobligated balance brought forward	−5,541,240	−564,098	+4,977,142
Unobligated balance carried forward	564,098		−564,098
Appropriation (new obligational authority)	11,227,587	18,437,000	+7,209,413
OBJECT CLASSIFICATION			
01 Personal services	145,150	145,315	+165
02 Travel	10,240	11,695	+1,455
03 Transportation of things	200	190	−10
04 Communication services	720	750	+30
05 Rents and utility services	480	455	−25
06 Printing and reproduction	2,350	2,290	−60
07 Other contractual services	67,035	47,990	−19,045
Services performed by other agencies	41,379	12,440	−28,939
08 Supplies and materials	1,880	1,915	+35
09 Equipment	980	940	−40
11 Grants, subsidies, and contributions	8,575	8,410	−165
16 Investments and loans	15,925,740	18,768,708	+2,842,968
Total obligations	16,204,729	19,001,098	+2,796,369

FUNDS REQUIRED ON AN ANNUAL BASIS

Mr. RABAUT. You are requesting the full amount for five new loans, or a total of $10,890,000. How much will be needed on these loans for fiscal year 1961?

Mr. DOMINY. If you were to appropriate, as the committee did last year, only the amount required for the budget year, fiscal 1961, on the Weber-Box Elder Conservation District, we would still need the full amount of $302,000 because that work is to be done in a 1-year program.

On the Haights Creek Irrigation Co., we would still need the full amount of $212,000 because that, too, is a 1-year program.

On the Donna Irrigation District, the 1961 program is $2,050,000, so the full $4 million in 1961 would not be needed unless we were going to make the total loan and finance it in full in 1 year.

On the San Benito County Water Conservation and Flood Control District, that too, is a 1-year program, so we would need the full amount of $1,420,000.

On the South Joaquin Irrigation District, the total is $4,895,000, but the 1961 budget is $1,400,000 for the work to be done in this budget year, sir.

Mr. RABAUT. Does that complete them?

Mr. DOMINY. That completes the loans in the budget for the first time.

Mr. RABAUT. The amount required for 1961?

Mr. DOMINY. Yes, sir.

As we have stated before, we still believe that under the loan program the full amount of the loan ought to be available so that we could make the loan and assure them that the money was available so they could be free from any limitations.

Mr. RABAUT. The 1961 requirements total $5,384,000, according to my estimate, as against the request here of $10,890,000, if we only supply the money for fiscal 1961.

Mr. DOMINY. But we have a request also in fiscal year 1961 to continue the loans that were started last year on a 1-year basis.

Mr. RABAUT. What do they amount to? Do you need this $6.6 million? Do you need it all?

Mr. DOMINY. We certainly would like to have the remainder of the money on the ones started last year on a 1-year basis.

OBLIGATIONS TO DATE

Mr. TABER. How much have you obligated on these loans already?

Mr. RABAUT. I think the figures are in the justification as to what they have had and what they request for 1961.

Mr. TABER. Let's see how much they have actually obligated.

Mr. DOMINY. Well, on the loans that have already been approved, the Terra Bella Irrigation District in California, the appropriation was $1,900,000. We have advanced $1,894,634 to the district and the amount expended is $1,701,228, with an unexpended amount of $193,406.

On the Solono Irrigation District we were appropriated $12,302,000, the full amount of the loan. We have advanced to the district, $2,999,759; of the amount we have advanced, they have expended $2,546,733.

In the case of Saucelito Irrigation District, California, the appropriation was for $4,384,000. We have advanced $266,640 to the district and they have expended that amount at this time.

The Chowchilla Irrigation District: The appropriation is $2,633,000. We have advanced $13,638 to the district and they have expended that amount. That one, obviously, is just getting underway.

The Georgetown Divide Public Utility District: The maximum loan is to be $3,878,000. You have appropriated previously $1,605,825. We have advanced $11,710 of that to the district and that has been expended.

Mr. TABER. Will you put that table showing what you have been reading to us in the record? Put it in tabular form so we will have the whole thing right together where we can see it.

Mr. DOMINY. Yes, sir; we will be happy to do that.
(The matter referred to follows:)

BUREAU OF RECLAMATION LOAN PROGRAM

Status of loans for which appropriations have been received, Dec. 31, 1959

	Maximum loan per contract	Appropriation	Total advanced to district	Amount expended	Amount unexpended
Public Law 130, distribution systems:					
Terra Bella Irrigation District, California	$1,900,000	[1] $1,900,000	$1,894,634	$1,701,228	$193,406
Solano Irrigation District, California	12,302,000	[1] 12,302,000	2,999,759	2,546,733	453,026
Saucelito Irrigation District, California	4,650,000	4,384,000	266,640	266,640	----------
Chowchilla Water District, California	2,650,000	2,633,000	13,638	13,638	----------
Total	21,502,000	21,219,000	5,174,671	4,528,239	646,432
Public Law 984, small reclamation projects:					
Georgetown Divide Public Utility District, California	3,878,000	1,605,825	11,710	11,710	----------
Goleta County Water District, California	2,080,000	2,080,000	43,984	43,984	----------
Jackson Valley Irrigation District, California	1,327,000	390,000	11,709	11,709	----------
Pleasant Valley Water District, California	2,040,000	380,250	10,686	10,686	----------
Santa Ynez River Conservation District, California	3,800,000	1,287,000	39,049	39,049	----------
Walker River Irrigation District, Nevada	693,000	693,000	280,698	260,977	19,721
Roosevelt Water Conservation District, Arizona	2,780,000	2,780,000	12,452	12,452	----------
Bountiful Water Subconservancy District, Utah	3,510,000	3,510,000	1,633,198	1,206,729	426,469
South Davis County Water Improvement District, Utah	634,000	634,000	473,096	387,392	85,704
Centerville-Deuel Creek Irrigation Co., Utah	402,000	399,500	2,805	2,805	----------
Cameron County Water Control and Improvement District No. 1, Texas	4,600,000	4,600,000	1,048,077	1,046,689	1,388
Total	25,744,000	18,359,575	3,567,464	3,034,182	533,282
Grand total	47,246,000	39,578,575	8,742,135	7,562,421	1,179,714

[1] These funds were appropriated under the C. & R. appropriation item.

FUNDS REQUIRED ON AN ANNUAL BASIS

Mr. RABAUT. On page BR–77 of the justification we have a list of four projects starting off with Santa Ynez River Water Conservation District in California.

There are four of them. Last year we made the allocation to this on a yearly basis.

Mr. DOMINY. Yes, sir.

Mr. RABAUT. Do these figures set forth here in the justification hold it to a yearly basis for 1961?

Mr. DOMINY. No, sir; this would complete the amount of the loan, when added to the amount that was——

Mr. RABAUT. How much would be required if we gave you the money just for 1961?

Mr. DOMINY. If you want to continue on the annual appropriation basis for the Santa Ynez River Water Conservation District, the 1961 anticipated amount of expenditure would be $810,000.

For Pleasant Valley County Water District we need the full amount because they will complete that one in fiscal year 1961. We need the $1,651,750.

In the case of Georgetown Divide, the 1961 program is $750,000, as contrasted to the $2,261,175 that will be required to complete it.

The Jackson Valley would finish in fiscal 1961 so we would need the $927,000.

Mr. RABAUT. Are those the total figures in relation to this $10 million?

Mr. DOMINY. $10 million would be needed if you wanted to finance it as an annual appropriation covering the 1961 requirements only. That actually totals $9,522,750 for loans and $220,075 for administration of the program.

Specifically, we would need a total of $9,742,825 as compared to the $18,437,000 requested.

LEGISLATIVE COMMITTEE ACTION

Mr. RABAUT. Has there been any adverse action by the legislative committee on any of these five loans?

Mr. DOMINY. No, sir.

Mr. RABAUT. Do you anticipate any?

Mr. DOMINY. No, sir.

BOULDER CITY MUNICIPAL FUND

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Expenses of disposal	$76,445	$193,545	$8,000
2. Construction and improvement of utility systems			150,000
Total program (costs—obligations)	76,455	193,545	158,000
Financing:			
Loan from "Colorado River dam fund, Boulder Canyon project"	−100,000		
Unobligated balance brought forward		−23,545	
Return of loan to "Colorado River dam fund, Boulder Canyon project"		100,000	
Unobligated balance carried forward	23,545		
New obligational authority		270,000	158,000
New obligational authority—appropriation:			
Current definite			150,000
Permanent indefinite		270,000	8,000
Appropriation		270,000	158,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions			1
Full-time equivalent of all other positions	5	5	
Average number of all employees	5	5	1
Number of employees at end of year			1
Average GS grade and salary	7.4 $6,168	7.5 $6,236	7.5 $6,269
Average salary of ungraded positions	$5,228	$5,412	$5,481
01 Personal services:			
Permanent positions			$5,000
Positions other than permanent	$24,243	$25,000	
02 Travel	3,433	3,500	
03 Transportation of things	85	100	
04 Communication services	209	300	
06 Printing and reproduction	208	300	
07 Other contractual services	47,196	163,000	2,650
Services performed by other agencies	63	220	
08 Supplies and materials	277	300	
11 Grants, subsidies, and contributions	716	800	150,350
15 Taxes and assessments	25	25	
Total obligations	76,455	193,545	158,000

Mr. RABAUT. Boulder City municipal fund, $150,000. Insert pages 80 through 83.

(The pages above referred to are as follows:)

BOULDER CITY MUNICIPAL FUND

EXPLANATION OF LANGUAGE CHANGE, FISCAL YEAR 1961

Insertion of language pertaining to appropriations for improvement of Boulder City

Subsection 6(b)(2) of the Boulder City Act of 1958 (72 Stat. 1726) provides that in connection with the establishment of the municipality of Boulder City under the laws of the State of Nevada authority is granted to appropriate from the Boulder City municipal fund an amount not to exceed $150,000 for expenditure by the Secretary of the Interior for construction or improvement of or additions to street, water, electric, and sewage systems for that part of Boulder City referred to as the Lakeview addition. The funds authorized are needed in fiscal year 1961 and the proposed language makes such funds available.

Summarized financial data

Appropriated, fiscal year 1960: Permanent appropriation	$270,000
Estimates of appropriations, fiscal year 1961:	
Appropriation request	150,000
Permanent appropriation	8,000
Total	158,000

JUSTIFICATION

Description.—This fund was established by the Boulder City Act of 1958, September 2, 1958, Public Law 85-900 (72 Stat. 1726). It is derived from the sale of Federal property in Boulder City, Nev., and is available for work in connection with the disposal of certain Federal property in the town, financial assistance to facilitate the establishment of a municipal corporation under the laws of the State of Nevada, and for other purposes. Incorporation of the community was effected on October 28, 1959, and the actual separation took place on January 4, 1960. As authorized under subsection 6(b)(2) of the above cited

legislation $150,000 for work in the Lakeview addition is requested from the Boulder City municipal fund for fiscal year 1961. It is estimated that sufficient revenues will be available in the fund to cover this appropriation.

Work proposed, fiscal year 1961

The following initial construction of additions and improvements amounting to $150,000 will be performed in that area referred to in the Boulder City Act as Lakeview addition. This work will be performed by the Bureau of Reclamation.

Street surfacing and lighting, $54,500.—These funds will permit street surfacing based on following the alignment of existing roads as closely as possible while attempting to conform to the master plan for subdivision. Due to haphazard location of houses and shacks, locating streets without removal of a few buildings will be extremely difficult. Many homes in the area will require relocation to fit any acceptable street and lot layout that might later be devised. Street lighting includes using existing facilities where possible, and would light only the central area of the subdivision. Existing power lines are not adequate for street lighting and a new circuit must be extended from Boulder City.

Sewage disposal, $60,000.—This will provide for the main sewer lines plus septic tank and leaching field. Residents will be expected to make connection with sewer mains at their expense.

Flood protective work and water system for fire protection, $35,500.—This program will provide necessary flood protective works since part of the subdivision extends into the broad flood plain and additions to the water system which must be installed in order to have adequate fire protection for the Lakeview addition.

Itemization of estimate

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (−)
Program and financing:			
Total obligations	$193,545	$158,000	−$35,545
Unobligated balance brought forward	−23,545		+23,545
Return of loan to "Colorado River Dam fund, Boulder Canyon project"	100,000		−100,000
New obligational authority	270,000	158,000	−112,000
New obligational authority:			
Current definite		150,000	+150,000
Permanent indefinite	270,000	8,000	−262,000
Appropriation	270,000	158,000	−112,000
Object classification:			
01 Personal services	25,000	5,000	−20,000
02 Travel	3,500		−3,500
03 Transportation of things	100		−100
04 Communication services	300		−300
06 Printing and reproduction	300		−300
07 Other contractual services	163,000	2,650	−160,350
Services performed by other agencies	220		−220
08 Supplies and materials	300		−300
11 Grants, subsidies, and contributions	800	150,350	+149,550
15 Taxes and assessments	25		−25
Total obligations	193,545	158,000	−35,545

Mr. RABAUT. Please explain this new item.

Mr. DOMINY. This item was part of the authorization in connection with the disposal of Boulder City, Nev., and to get it incorporated under the laws of the State of Nevada.

Mr. RABAUT. Is there an advantage to having it incorporated?

Mr. DOMINY. Indeed there is because we are relieved of the operation of this city as a Federal town and it now will be under the laws of Nevada, under incorporation.

Mr. TABER. Do you sell the houses?

Mr. DOMINY. Yes, sir. We have disposed of the private homes and lots, the business lots and business buildings and all that sort of thing and we have turned over the city water supply and the city sewage system and public items of that type to the city under this authorization.

RETURN ON ORIGINAL INVESTMENT

Mr. CANNON. What percentage do you expect to salvage out of the original cost?

Mr. DOMINY. As a matter of fact, Mr. Cannon, considering that we have been renting those homes all these years, at a rental that was to cover the cost of operation plus amortization of the original capital expenditure——

Mr. CANNON. Has your rent from these buildings amortized their original cost?

Mr. DOMINY. They may not have in full, but I am sure they amortized the cost down to where we had less in them actually than the appraised value at which we are selling them.

I think there has been a net recovery there to the Treasury as a result of our expenditures, which was all part of the cost of Boulder Dam, Hoover Dam, and has been fully repaid in any event.

Now, the incorporation of the community was finalized January 4, 1960, at which time the elected city council assumed full responsibility for the government of this city that has been under Federal control now since the early thirties. Contracts and agreements between the Bureau and the city were signed on January 4, 1960, and it includes with one exception transfer of lands, equipment, structures, and utilities. The exception is the Lakeview addition where under Public Law 85–900, the Secretary is required to perform certain functions and expend designated funds for the start of a rehabilitation program of this area. This program could not be completed prior to incorporation of Boulder City. Sale of 175 Government-owned housing units has been completed, of which a major portion is FHA financed.

Mr. CANNON. What do you eventually expect to recover?

Mr. DOMINY. We will recover most of everything we have put in.

Now, some of the streets and utilities, water supply and sewage system, and items of that type will not be fully recovered except as they are paid for out of the revenues of the power features of this project. There will be no loss to the Government on this at all.

Mr. BENNETT. I think we should point out, Mr. Chairman, that these moneys we are talking about here are out of the Boulder City municipal fund. Into that fund under the act goes the revenues that we acquire from the sale of the property. That goes into this fund, and this $150,000 comes out of that same fund, so it is in effect just an intake and an outgo from the same place and the act is what requires that.

Mr. CANNON. What is the population of the city today?

Mr. DOMINY. Between 4,000 and 5,000 people.

Mr. CANNON. Is it growing or is it declining?

Mr. DOMINY. It has been on a pretty static basis. There are a lot of estimates now—you see, people couldn't buy property as a Federal city. They could only lease the lots from the Federal Government and there is a lot of speculation that now the city will grow; that they hope they can keep a little tighter restriction on gambling and things of that sort and keep it an attractive residential city and they think they will get a lot of interest. The climate there is pretty good on a year-round basis.

Lake Mead is a good recreational attraction. This money requested is a part of the authorized proposal to finalize this deal and get the city off the Federal taxpayers' responsibility and in the hands of local self-government.

DISPOSAL OF COULEE DAM COMMUNITY

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Expenses of disposal	$225,333	$66,630	$16,000
2. Payment to city of Coulee Dam	44,000		15,000
Total program (costs—obligations)	269,333	66,630	31,000
Financing:			
Unobligated balance brought forward	−10,963	−6,630	
Unobligated balance carried forward	6,630		
New obligational authority	265,000	60,000	31,000
New obligational authority: Appropriation:			
Current definite			15,000
Permanent indefinite	265,000	60,000	16,000
Appropriation	265,000	60,000	31,000

Object classification

		1959 actual		1960 estimate		1961 estimate	
	Average number of all employees		5		4		1
	Number of employees at end of year		0		0		0
	Average GS grade and salary	7.4	$6,168	7.5	$6,236	7.5	$6,269
01	Personal services: Permanent positions		$26,998		$23,000		$10,000
02	Travel		240		250		
04	Communication services		296		250		
07	Other contractual services		11,789		26,500		5,500
	Services performed by other agencies		375		15,000		
08	Supplies and materials		2,481				
10	Lands and structures		114,976				
11	Grants, subsidies, and contributions		45,754		1,630		15,500
13	Refunds, awards, and indemnities		66,424				
	Total obligations		269,333		66,630		31,000

Mr. RABAUT. We will insert pages 84 through 87 of the justification, concerning disposal of Coulee Dam community.

(The matter referred to follows:)

DISPOSAL OF COULEE DAM COMMUNITY

EXPLANATION OF CHANGE IN LANGUAGE, FISCAL YEAR 1961

Insertion of language pertaining to appropriations for certain expenses connected with the disposal of Coulee Dam community

The act of August 30, 1957 (71 Stat. 524), entitled the "Coulee Dam Community Act of 1957," authorizes the Secretary of the Interior to use the proceeds from the sale of Federal property in the Coulee Dam area, for expenses of the disposal and for attainment of early incorporation of the municipality and for other purposes. However, specified amounts to be made available (1) at the end of 1 year after incorporation, and (2) at the end of 2 years after incorporation shall become available only after specific appropriations therefor have been made by Congress. The purpose of the inserted appropriation language is to make the latter amount available. The former amount is being proposed as a supplemental appropriation for fiscal year 1960.

Summarized financial data

Appropriation, fiscal year 1960: Permanent appropriation	$60,000
Estimate of appropriations, fiscal year 1961:	
Appropriation request	15,000
Permanent appropriation	16,000
Total	31,000

JUSTIFICATION

Description.—From the proceeds of the sale of Federal property in the town of Coulee Dam and the city of Grand Coulee authorized by the Coulee Dam Community Act of 1957, August 30, 1957 (71 Stat. 524), a fund is established which is available for expenditure, directly or through the local units of Government, for work in connection with the disposal of the Federal interest in the communities, for construction of sewage disposal facilities, including betterment work on the existing open drains and financial assistance after incorporation. The legislation provides for three scheduled assistance payments to the new municipality after incorporation. The first payment was made at the time of incorporation and the others will be in annual intervals thereafter. In accordance with subsection 9(a) of the act the latter payments can be made only after specific appropriation by Congress. The community was incorporated on February 26, 1959. The appropriation requested for fiscal year 1961 is for the third scheduled payment. The second scheduled payment is proposed for later transmission as a supplemental request for fiscal year 1960. It is estimated that sufficient revenues will be available in the fund to cover these appropriations.

Use of funds, fiscal year 1961

These funds will assist the city of Coulee Dam to continue meeting its expenses incident to incorporation and the beginning of municipal operations. This payment will help offset the lag in town revenues and furnish funds for the town's current expense budget. The amounts of assistance payments were specified in the authorizing legislation and were based on projected estimates of income and expenses of the city for the first 3 years after incorporation. These estimates now appear to have been wholly valid as the annual deficits of income in relation to expenses are approximating these amounts.

Itemization of estimate

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (−)
Program and financing:			
Total obligations	$66,630	$31,000	−$35,630
Unobligated balance brought forward	−6,630		+6,630
New obligational authority	60,000	31,000	−29,000
New obligational authority:			
Current definite		15,000	+15,000
Permanent indefinite	60,000	16,000	−44,000
Appropriation	60,000	31,000	−29,000
Object classification:			
01 Personal services	23,000	10,000	−13,000
02 Travel	250		−250
04 Communication services	250		−250
07 Other contractual services	26,500	5,500	−21,000
Services performed by other agencies	15,000		−15,000
11 Grants, subsidies, and contributions	1,630	15,500	+13,870
Total obligations	66,630	31,000	−35,630

Mr. RABAUT. Please explain this item.

Mr. DOMINY. Well, here we have a very similar situation to that just described with respect to Boulder City, Nev.

Coulee Dam community was built likewise in the middle thirties as a Government town in connection with the construction of Grand Coulee Dam.

The act of August 30, 1957, entitled "Coulee Dam Community Act," authorizes the Secretary of the Interior to use the proceeds from the sale of Federal property in the Coulee Dam area for expenses of the disposal and for attainment of early incorporation of the municipalities.

However, specified amounts to be made available (1) at the end of 1 year after incorporation, and (2) at the end of 2 years after incorporation, shall become available only after specific appropriations therefor having been made by Congress. The purpose of the inserted appropriation language in fiscal year 1961 is to make the latter amount available. The former amount is being proposed as a supplemental appropriation for fiscal year 1960.

ADMINISTRATIVE PROVISIONS

Mr. RABAUT. Administrative provisions. Insert pages 88 through 91.

(The pages referred to are as follows:)

ADMINISTRATIVE PROVISIONS

EXPLANATION OF CHANGES IN LANGUAGE, FISCAL YEAR 1961

Insertion of language pertaining to purchase of motor vehicles

The number of passenger-carrying vehicles owned by the Bureau has been decreased each year during the past eight. The change in utilization of sedans is a result of transfer to interagency motor pools of on-highway use vehicles which consistently maintain highest average utilization. The Bureau utilization of vehicles on construction continues to be well above the standard.

Fiscal year	Automobiles		Station wagons		Total, all cars and trucks
	Number	Average miles per vehicle-year	Number	Average miles per vehicle-year	
1952	1,175	9,877	773	8,791	4,626
1953	1,144	9,901	623	8,351	4,397
1954	860	9,693	223	7,584	3,684
1955	739	10,275	120	8,094	3,315
1956	737	10,486	100	8,186	3,378
1957	664	11,582	64	10,110	3,434
1958	605	11,248	47	10,264	3,230
1959	571	10,570	41	10,630	3,052

Sixty percent of the reduction in the number of passenger-carrying vehicles was due to the program, to emphasis on the selection of types better suited to off-highway use in project investigation and construction work, and to improved utilization through better management; the remaining 40-percent reduction was due to transfer of passenger-carrying vehicles to newly established interagency motor pools. The reduction in passenger-carrying vehicles from fiscal year 1952 through fiscal year 1959 totaled 1,336. The entire fleet of passenger cars through trucks of all capacities was reduced 1,574 during the same period.

At the beginning of fiscal year 1960, of the 612 sedans and station wagons on hand (571 sedans and 41 station wagons), 48 exceeded replacement standards by mileage (over 60,000 miles) ; 30 by age (over 6 years old) ; and 36 by both mileage and age. These totaled 114 vehicles, or 19 percent of the passenger-carrying fleet. During fiscal year 1960, 84 passenger-carrying vehicles will be replaced and the fleet further reduced by the disposal of 41 vehicles without replacement.

Any vehicles purchased during fiscal year 1961 will probably be delivered about March 1961. At that time, in addition to the 98 passenger-carrying vehicles for which purchase authorization is being requested, all of which are for replacement, another 43 will have exceeded mileage replacement standards, and 2 more will have exceeded the age criteria, making a total of 143 vehicles eligible for replacement. However, only the 98 for which replacement is requested will be so uneconomical of operation and maintenance as to warrant withdrawal from service. Good management of a motor vehicle fleet requires the replacement of individual units when continued operation would materially increase costs or contribute to unsafe operation.

The 98 vehicles for replacement only consist of 93 sedans and 5 station wagons or 17 percent of the passenger-carrying fleet necessary to insure the economical continuity of the Bureau's authorized program.

During fiscal year 1959 cooperation with the General Services Administration has been continued by participation in the use of that agency's motor vehicle pools established contiguous to Bureau installations, and none of the vehicles for which authorization to purchase is being requested are to be used where GSA pools are in operation.

Insertion of language pertaining to purchase of aircraft

It is recommended that the Bureau be authorized to replace one aircraft at our Kansas River projects during fiscal year 1961, which will have been in service 10 years and, at present rate of usage, will then require extensive replacement of major components and correction of structural weaknesses due to use and age. Such maintenance and repair is conservatively estimated to cost $5,000 at a minimum in addition to normal maintenance expense. It is believed that this anticipated required expenditure during fiscal year 1961 on the present aircraft can be applied more practically to the acquisition of a new, small, twin-engine aircraft with an associated marked increase in operational convenience and safety.

A majority of flights in the Kansas River projects area are made to and from small towns and Bureau reservoir sites utilizing unattended landing strips and frequently away from immediate contact with FAA communications

and airway weather information. Despite excellent maintenance and normal precautionary and safety measures employed by the pilot, there is always the potential of an unexpected forced landing. Under such circumstances, twin-engine operation usually assures ability to return to or reach a nearby landing strip on one engine rather than make a forced landing in a pasture or other field because of lack of any motive power. Small twin-engine aircraft of the type recommended are equally versatile to our present single-engine craft in their ability to operate dependably from minimum-length landing strips.

Other advantages of the recommended replacement aircraft include reduction in flying time between given points with increased passenger-carrying capacity and slower engine operation resulting in low maintenance, longer periods of operation between required major overhaul or replacement, and longer engine life. Actual cost per passenger-mile over a year's operation should remain about the same as for the present aircraft, despite increased oil and fuel consumption, due to increased passenger potential and reduced flying time. Of approximately 250 working days a year, the present plane has been operated on an average of 150 days per year with an average passenger load of 2.3 passengers.

In summary, the replacement of aircraft as recommended is considered desirable from the following standpoints: (*a*) Age, condition, and obsolescence of present aircraft; (*b*) safety of twin-engine operation; (*c*) increased transportation potential and usage of replacement aircraft.

Addition of proviso exempting rehabilitation and betterment work from limitation on force account work

The language exempts from the provisions of the force account limitation work performed under the Rehabilitation and Betterment Act of 1949 (63 Stat. 724).

Rehabilitation and betterment work frequently does not fall into the pattern of the Bureau's regular construction work. As a rule, the rehabilitation and betterment projects are much smaller than the Bureau's regular construction projects, and by the same token, the project features or separable work items are also smaller. As a result, there have been cases on which no bids were received for work scheduled, despite the time and effort involved in preparing plans and specifications and advertising for bids. Furthermore, work on rehabilitation and betterment projects frequently must be performed under physical conditions which do not lend themselves to favorable contract bids.

In some cases, especially in the Southwest where year-round use is made of project facilities, rehabilitation and betterment work must be done only as it can be meshed with uninterrupted use of the project facilities. Contractors cannot afford to tie up men and equipment under such indefinite conditions, hence, if they bid at all on such work, their offers carry a large contingency factor which make them too high to consider. Because of these factors, it is not unusual for the irrigation district involved to perform the rehabilitation work with its own forces.

In cases where projects are operated and maintained by the Bureau, trained Bureau personnel are already available to perform such work as may be required. However, despite these conditions, the present limitation on work by Government forces prevents this efficient approach. The proposed language will permit the Bureau, at a saving to the project facility users, to make full use of these trained employees. This appears to have been the intent of Congress when the Rehabilitation and Betterment Act was written, because provision is made therein for the work to be done by contract, by force account or by contract entered into with the local organization concerned whereby such organization would perform the work.

The Bureau chooses, as it has always done, to contract as much of its work as feasible, and the proposed language contemplates no change in that practice with respect to new construction work. However, it does feel that because of the existence of special conditions in connection with some rehabilitation and betterment projects, there should be authority to waive the provisions of the force account limitation in the interest of economy and efficiency.

PURCHASE OF AIRCRAFT

Mr. RABAUT. Please explain the aircraft item.

Mr. DOMINY. This is to replace one at McCook, Nebr. The airplane has been used there to very good advantage and it is reaching the end of its useful life. Any reasonable program of overhaul and maintenance would now, in our judgment, be more burdensome than to salvage its value and acquire a new aircraft.

They are now using a four-place, single-engine Ryan Navion which was acquired in February 1951. During an average year of approximately 250 working days, the plane has been operated on an averge of 150 days per year with an average passenger load of 2.3. During fiscal year 1959, 92,394 passenger-miles were logged with a cost of $0.124 per passenger-mile.

FORCE ACCOUNT WORK

Mr. RABAUT. Explain the new language provisions concerning force account work.

Mr. GOLZE. The proposed language change for the force account item is to exempt the rehabilitation and betterment work that we do under the construction and rehabilitation appropriation. The force account language as it is now set up in the appropriation act in effect says that everything that is financed out of the construction and rehabilitation appropriation comes within that restriction. That includes the rehabilitation and betterment that we are doing in a number of projects as described when we discussed that item during the hearing the other day.

Actually the rehabilitation and betterment work is very similar to operation and maintenance. In many ways it is parallel to it in the type of employees who do a type of work not ordinarily of interest to contractors.

It would greatly simplify the operations of the Bureau if this were permitted.

Mr. JENSEN. Have you been getting along pretty well under present provisions? It permits you to expend a certain percent of the appropriated funds for force account, does it not?

Mr. GOLZE. Yes, sir. We have limitation in two directions. One is in the amount of money and the other is on a percentage basis.

Mr. JENSEN. What is the percentage?

Mr. GOLZE. Twelve percent. Not to exceed 12 percent of the construction allotment.

Mr. JENSEN. What is the other?

Mr. GOLZE. $225,000, which may be expended from the appropriation. So you have in effect a dual ceiling there. The one that controls would be the one that would have the greatest control.

Mr. JENSEN. What difficulty have you encountered in complying with those provisions?

Mr. DOMINY. This problem has arisen for the first time on the Rio Grande project. Under the Rehabilitation and Betterment Act, we do have authority to let the irrigation districts take the money appropriated for rehabilitation and betterment and spend those by their own forces or by contract, as long as they do it and perform the work at standards satisfactory to the Bureau of Reclamation.

We have been doing that for years. For example, the Salt River project has spent about $6 or $8 million with our supplying funds from rehabilitation and betterment, but with the district doing it with their own forces or by contracting under their own direction and supervision. They are accountable always to us for the adequacy of the engineering and the work being performed.

But here we are running into a rehabilitation and betterment of a sizable project that is still operated by the United States. This is the one I told you about the other day that reaches across two States and with the Republic of Mexico across the river. They are reluctant to take over operation and maintenance because they want the United States in there as a buffer between their operation on one side of the Rio Grande River with Mexico putting pumps in the river and so on on the other side.

So here we run into a force account limitation under a rehabilitation and betterment program which certainly was not contemplated by the Rehabilitation and Betterment Act.

Mr. JENSEN. Then may the committee understand that, because you have this experience on the project that is explained, you are asking us to change the language which would affect every project?

Mr. DOMINY. Only rehabilitation and betterment projects, Mr. Jensen.

Mr. JENSEN. Well, I know, but that is something.

Mr. DOMINY. And then, only——

Mr. JENSEN. The final outcome of permitting this work to be done by force account as desired here I am afraid would lead to a request by the Bureau for more permanent personnel which would, in my opinion, not be a thing we would like to countenance.

Now, I don't believe that you have experienced much difficulty in complying with the present provision in the situation which you have just explained on this one project, the Rio Grande project, New Mexico and Texas.

Mr. Chairman, I can understand in a large project of that nature it would be a little difficult to comply with present provisions and so rather than to make this an overall opposition covering all rehabilitation and betterment projects, I would not object to saying in the report that the Rio Grande project which Mr. Golze and Mr. Dominy have explained should be exempt from the provisions as they presently stand.

Perhaps we could merely give them a little more leeway. Say 35 percent or 25 percent of the funds may be expended for force account, but to open this thing wide, I think we would experience some bad effects in the very near future.

Mr. DOMINY. Mr. Jensen, the Bureau of Reclamation under my direction will certainly never try to do by force account any work that can be done reasonably and equitably and practically by contract

because we know the wishes of Congress in this regard, and we have had very satisfactory experience getting our work done competently under contract.

Mr. JENSEN. I suppose you know, Mr. Dominy, why the committee felt years ago that it was necessary to put this proviso in our bills?

Mr. DOMINY. I do, indeed.

Mr. JENSEN. We discovered that force account was being abused and it was pretty well proven to our satisfaction that it had been costing more money than what was done by contract.

Mr. DOMINY. In the rehabilitation and betterment work on these old, established projects, we have to do the work in a brief space of time when the canals are dried up in the fall of the year and in the spring of the year, or by very careful operation we may be able to dry a canal up for a few days in the middle of the season in order to put in a single structure or something like that which is prefabricated in advance and rushed right out there and dropped into place.

This kind of work just doesn't lend itself to contracting. It just has to be done by available trained crews on the project.

Mr. JENSEN. Would a 25-percent limit be helpful?

Mr. DOMINY. That would not help us on this project.

Mr. JENSEN. What would you say then if we would give you permission on the Rio Grande project to use 50-percent force account and leave the rest as is?

Mr. DOMINY. Even 50 percent doesn't help us on this project.

Mr. JENSEN. You want it to be exempt completely?

Mr. DOMINY. Yes, sir.

Mr. JENSEN. You think that would save money?

Mr. DOMINY. Yes, I certainly do in this instance for the reasons cited.

Mr. JENSEN. Of course, now, Mr. Dominy, I am sure you will not be the Chief of the Bureau of Reclamation forever and you never know who is going to follow you. He might be a fellow who would say, "Well, we will just do everything by force account."

Mr. DOMINY. We are asking for a very minor deviation here. We are asking for this exemption only on rehabilitation and betterment work and then only where the Government is operating the project.

Mr. JENSEN. Well, would you go for a monetary limitation?

Mr. DOMINY. I would go for — if you want to limit this to just taking care of this one problem area, just make it read:

Provided, That this paragraph shall not apply to work performed on the Rio Grande Federal reclamation project under the Rehabilitation and Betterment Act.

Then you limit it to this one project which is where I now have the problem.

Mr. CANNON. Obviously this particular work can be done cheapest by force account because it is done by the very same men who maintain it.

Mr. DOMINY. That is right, sir.

Mr. JENSEN. On the Rio Grande I can understand an exception to the rule, but we have gotten along very well, Mr. Chairman, under the limitation in the law.

Mr. CANNON. And we have had many abuses under the force account.

Mr. JENSEN. We used to have some terrible abuses under the force account.

Since Mr. Dominy is so concerned about this, relative to the Rio Grande, and because of my admiration for him and the job he is doing, knowing of his good work, I wouldn't object to the language which has just been suggested.

Mr. DOMINY. That would certainly correct our problem in the one problem area, Mr. Jensen.

Mr. JENSEN. That is all, Mr. Chairman.

Mr. RABAUT. Are there any further questions?

We have come to the completion of this. We certainly have to commend Mr. Dominy on the fine showing made here, and the alertness of his staff. Sometimes I think the leadership he shows is reflected in his staff and for that he should be highly congratulated.

Mr. DOMINY. Thank you very much, Mr. Chairman. It has been a pleasure to appear here and justify this budget.

Mr. PILLION. Mr. Chairman, I would like to add a word of commendation for the forthright manner in which many of these questions—all the questions were answered and the patience shown by the Commissioner and his staff, and I am sure that he is running a good shop, administering the job very, very well in spite of the fact that I sometimes disagree with the overall policies that are not strictly within the jurisdiction of the Commissioner, or the Department, but I acknowledge their sincerity and the fine work they are doing.

Mr. DOMINY. I appreciate that statement very much, Mr. Pillion.

Mr. CANNON. Thank you, Mr. Commissioner.

The committee will stand adjourned until Monday at 10 o'clock.

BONNEVILLE POWER ADMINISTRATION

WITNESSES

W. A. PEARL, ADMINISTRATOR
J. L. MORTHLAND, ASSISTANT ADMINISTRATOR
M. EVANS, DIRECTOR OF OPERATIONS AND MAINTENANCE
E. C. STARR, CHIEF ENGINEER
E. D. OSTRANDER, DIRECTOR OF ADMINISTRATIVE MANAGEMENT
D. G. WORTH, BUDGET OFFICER

CONSTRUCTION

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
Direct obligations:			
1. Construction in progress	$17,137,673	$12,120,124	$13,341,000
2. New construction	3,047,497	8,707,000	6,515,000
3. General plant	395,657	631,000	786,000
Total direct obligations	20,580,827	21,458,124	20,642,000
Reimbursable obligations: Services performed for—			
(a) Operation and maintenance	935,288	953,000	1,046,000
(b) Other accounts	373,168	426,000	425,000
(c) Non-Federal sources	66,119	14,000	15,000
Total reimbursable obligations	1,374,575	1,393,000	1,486,000
Total obligations	21,955,402	22,851,124	22,128,000
Financing:			
Unobligated balance brought forward	−76,951	−430,124	−422,000
Advances and reimbursements from—			
Other accounts	−1,308,456	−1,379,000	−1,471,000
Non-Federal sources (16 U.S.C. 832(a), (h))	−66,119	−14,000	−15,000
Unobligated balance carried forward	430,124	422,000	
Appropriation (new obligational authority)	20,934,000	21,450,000	20,220,000

Object classification

		1959 actual	1960 estimate	1961 estimate
	Total number of permanent positions	1,248	1,168	1,130
	Full-time equivalent of all other positions	33	30	50
	Average number of all employees	1,221	1,171	1,153
	Number of employees at end of year	1,259	1,236	1,216
	Average GS grade and salary	8.1 $6,661	8.2 $6,731	8.2 $6,731
	Average salary of ungraded positions	$6,317	$6,578	$6,584
01	Personal services:			
	Permanent positions	$7,584,926	$7,289,000	$6,978,000
	Positions other than permanent	173,728	162,000	271,000
	Other personal services	125,285	146,000	154,000
	Excess of annual leave taken (−) over leave earned	−30,650		
	Total personal services	7,853,289	7,597,000	7,403,000
02	Travel	692,054	682,000	711,000
03	Transportation of things	47,767	48,000	48,000
04	Communication services	90,949	94,000	94,000
05	Rents and utility services	87,429	113,000	111,000
06	Printing and reproduction	2,641	5,000	4,000
07	Other contractual services	551,148	573,000	623,000
08	Supplies and materials	5,792,317	5,956,124	4,230,000
09	Equipment	2,517,314	2,641,000	2,300,000
10	Lands and structures	3,802,352	4,622,000	6,097,000
11	Grants, subsidies, and contributions	495,161	496,000	483,000
13	Refunds, awards, and indemnities	22,981	24,000	24,000
	Total obligations	21,955,402	22,851,124	22,128,000

Operation and Maintenance

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. System operation and maintenance	$8,327,773	$8,771,750	$9,670,000
2. Power contracts and rates	314,172	323,000	325,000
3. General administration	831,391	899,000	980,000
Total program costs	9,473,336	9,993,750	10,975,000
4. Relation of costs to obligations: Obligations incurred for costs of other years, net	20,939		
Total program (obligations)	9,494,275	9,993,750	10,975,000
Financing:			
1959 appropriation available in 1958	45,170		
Unobligated balance no longer available	6,755		
Appropriation (new obligational authority)	9,546,200	9,993,750	10,975,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	960	1,003	1,046
Full-time equivalent of all other positions	22	25	28
Average number of all employees	937	995	1,049
Number of employees at end of year	966	1,061	1,117
Average GS grade and salary	8.1 $6,661	8.2 $6,731	8.2 $6,731
Average salary of ungraded positions	$6,317	$6,578	$6,584
01 Personal services:			
Permanent positions	$6,310,225	$6,715,000	$7,256,000
Positions other than permanent	105,540	113,100	141,000
Other personal services	153,119	189,200	180,000
Excess of annual leave earned over leave taken	86,127	40,000	45,000
Total personal services	6,655,011	7,057,300	7,622,000
02 Travel	224,001	244,000	250,000
03 Transportation of things	34,167	33,000	34,000
04 Communication services	187,021	209,000	228,000
05 Rents and utility services	106,735	122,000	122,000
06 Printing and reproduction	1,613	3,000	3,000
07 Other contractual services	409,845	409,000	586,000
Services performed by other agencies	935,288	931,700	1,046,000
08 Supplies and materials	549,504	518,000	586,000
11 Grants, subsidies, and contributions	419,294	447,750	478,000
13 Refunds, awards, and indemnities	16,966	19,000	20,000
1959 program obligated in 1958	−45,170		
Total obligations	9,494,275	9,993,750	10,975,000

Mr. CANNON. The committee will be in order.

We shall take up this morning the Bonneville Power Administration. They have submitted a budget request for $32,718,000. for the fiscal year 1961. I am glad to note that it is at least $6,000 below last year.

Insert justifications beginning with page 2 at this point.

(The pages referred to follow:)

GENERAL STATEMENT

RESPONSIBILITIES AND ACTIVITIES OF BONNEVILLE POWER ADMINISTRATION

The Administration is responsible for the marketing of electric power produced by 17 Federal hydroelectric generating plants in service or under construction in the Pacific Northwest. To carry out this responsibility, it constructs, operates, and maintains a transmission system to integrate the Federal power projects, transmit their output to load centers, andintercon nect with non-Federal utility systems throughout the region. The Federal transmission system is also utilized under appropriate contracts, for the wheeling of power from non-Federal generating plants. In addition, the Administration develops basic data relative to the long-term power needs of the region to provide a firm base for transmission planning and a guide to the additional generation which will be needed; conducts joint engineering studies with power utilities to determine the most efficient transmission network for the region; and actively participates with other Government agencies and non-Federal groups in planning for the continuing development of the region's potential hydroelectric resources to meet power needs.

1961 APPROPRIATION ESTIMATES

Estimates for 1961 compare with appropriations for 1960 as follows:

	1960	1961
Construction:		
New appropriations	$21,450,000	$20,220,000
Carryover from prior fiscal year	430,000	422,000
Total, construction funds available	21,880,000	20,642,000
Unobligated balance carried over to succeeding fiscal year	−422,000	
Total, construction program	21,458,000	20,642,000
Operation and maintenance	[1] 10,189,000	10,975,000
Reimbursements	617,000	617,000
Continuing fund		
Trust funds	460,000	484,000
Total	32,724,000	32,718,000

[1] Includes $195,000 anticipated supplemental to cover wage increases.

CONSTRUCTION PROGRAM

Generation capacity additions.—The Administration's 1961 construction program includes transmission facilities required to carry power to load centers from the generator installations scheduled to be placed in operation between July 1960 and July 1964. These facilities are associated with generating capacity being installed at The Dalles, Hills Creek, Ice Harbor, and Cougar projects, all Federal plants, and include facilities at load centers for delivery of power to customers. These facilities will have capacity for wheeling power from the non-Federal Priest Rapids, Rocky Reach, Mayfield, Rock Island, Carmen-Trail Bridge, and Wanapum projects. Contracts have been executed for wheeling power from the Priest Rapids, Rocky Reach, and Wanapum projects. Contracts are under negotiation for wheeling additional power from the Wanapum, Mayfield, Carmen-Trail Bridge, and Rock Island projects.

At the beginning of fiscal year 1961, peak generating capacity of the U.S. Columbia River power system, together with non-Federal capacity for which wheeling has been undertaken by the Government, will total 7,746,500 kilowatts. During the 4 fiscal years, 1961 to 1964, inclusive, 1,739,500 kilowatts of peaking capacity which the transmission system will be required to carry is presently scheduled at Federal and non-Federal projects. The total peak generating capacity on the system is therefore scheduled to reach 9,486,000 kilowatts by the end of fiscal year 1964, the closing year of the budget period. Generation additions are shown in detail on the following table.

Peak generation capacity additions scheduled for installation, fiscal year 1961 budget period

[Thousands of kilowatts]

	In service, July 1, 1960	Fiscal year 1961	Fiscal year 1962	Fiscal year 1963	Fiscal year 1964	Total in service, July 1, 1964	Scheduled for later budget periods
Federal projects:							
Completed projects	5,831.0					5,831.0	
The Dalles	1,076.4	179.4				1,255.8	
Hills Creek			34.5			34.5	
Ice Harbor			310.5			310.5	
Cougar				28.8		28.8	
John Day							1,500.0
Total, Federal projects	6,907.4	179.4	345.0	28.8		7,460.6	1,500.0
Firm wheeling for non-Federal projects: [1]							
Completed projects	514.2					514.2	
Priest Rapids	324.9	139.2				464.1	
Rocky Reach			619.5			619.5	
Mayfield			120.0			120.0	
Carmen-Trail Bridge				53.5		53.5	
Wanapum					254.1	254.1	169.4
Total, non-Federal projects	839.1	139.2	739.5	53.5	254.1	2,025.4	169.4
Grand total	7,746.5	318.6	1,084.5	82.3	254.1	9,486.0	1,669.4
Cumulative grand total	7,746.5	8,065.1	9,149.6	9,231.9	9,486.0	9,486.0	11,155.4

[1] Amounts show power wheeled or to be wheeled by the Administration.

Joint studies.—All electrical facilities proposed for construction in this budget have been developed from load, resource, and engineering studies made jointly by the Administration and the customer-utilities. Major system additions have been the subject of intensive analyzer board studies in which all of the larger utilities of the region have participated. In addition, all customers of the Administration have had an opportunity to review in detail each transmission project in the budget. As a result of these thorough joint studies and reviews, the Administration believes that the items budgeted are needed on the schedules proposed and do not duplicate any existing facilities, that they represent the best solution to the service problems at hand, and that they will constitute a sound investment for the Government.

Components of construction program.—The Administration's total fiscal year 1961 construction program compares with earlier programs by major components as follows:

	1960	1961
Construction in progress	$12,120,000	$13,341,000
New construction	8,707,000	6,515,000
General plant (tools and equipment)	631,000	786,000
Total, construction program	21,458,000	20,642,000

A more detailed summary of the fiscal year 1961 program follows:

Type of facility	Construction in progress	New construction	General plant	Total
Major grid	$9,810,000	$3,306,000		$13,116,000
Area facilities (local services and minor capital additions)	2,608,000	1,265,000		3,873,000
General system facilities (buildings, communications, tools, and equipment, preliminary engineering)	502,000	919,000	$786,000	2,207,000
System electrical facilities (transformer and circuit breaker additions and replacements)	421,000	1,025,000		1,446,000
Total	13,341,000	6,515,000	786,000	20,642,000

The following table shows the fiscal year 1961 program in terms of physical units of property to be constructed:

	Construction in progress during 1961	New construction to be started in 1961	Total
345-kilovolt transmission lines.....structure miles	209	78	287
287-kilovolt transmission lines.....do	65		65
230-kilovolt transmission lines.....do	21		21
115-kilovolt transmission lines.....do	243	8	251
New substations:			
Number	10	3	13
Capacity in kilovolt-amperes	16,000	39,000	55,000
Transformer additions:			
Number	8	6	14
Capacity in kilovolt-amperes	420,000	34,500	454,500
System reactive additions, capacity in kilovolt-amperes	262,000	100,000	362,000

Tools and equipment.—This program consists primarily of replacement of obsolete, overage, and outworn vehicles; and construction, shop, laboratory, communications and office equipment. The increase in the 1961 program from $631,000 to $786,000 is due largely to the replacement of a helicopter purchased in 1952, and replacement of light trucks and carryalls.

OPERATION AND MAINTENANCE

The 1961 program for operation and maintenance will require $10,975,000 in comparison to the 1960 program requirement of $10,188,750. The increase of $786,250 or 7.7 percent is needed for system operations and maintenance of the expanded system required to transmit new Federal hydroelectric power scheduled to come on the system, and for wheeling by the Government of new non-Federal hydroelectric power in the Pacific Northwest. A significant portion of the increase is associated with existing facilities which have reached the age where major maintenance is required to extend their service lives. The Federal Employee Health Benefits Act has also contributed to the increase in appropriation requirements for 1961.

The 1961 program by major activities compares with 1960 as follows:

Activity	1960	1961	Increase	
			Amount	Percent
System operation and maintenance	$8,962,750	$9,670,000	$707,250	7.9
Power contracts and rates	323,000	325,000	2,000	.6
General administration	903,000	980,000	77,000	8.5
Total	10,188,750	10,975,000	786,250	7.7

$707,250 or 90 percent of the $786,250 increase is in system operation and maintenance. This activity consists of the operation of substations; maintenance of transmission lines, substations, meters, relays, communications equipment and buildings; scheduling and dispatching of power; engineering of the system; and analyses of power resources and requirements. The number of substations will increase from 193 to 200 during 1960, transformer capacity will increase from 14,005,000 kilovolt-amperes to 14,450,000 kilovolt-amperes and structure miles of line will increase from 7,462 to 7,542. Combined Federal and wheeled non-Federal generation of 815,700 kilowatts will be added in 1960, and 318,600 kilowatts in 1961. The workload of the staff will be greater because of these increases in transmission plant and power resources.

An increase of $2,000 in power contracts and rates activities is contemplated in 1961. The increase of $77,000 in general administration activities results from the direction of a higher portion of administrative staff effort to operation and maintenance and a correspondingly lower portion to construction.

NET BILLING

The Administration proposes to settle accounts with its customers on a net-balance basis. Under the proposal, the non-Federal utilities would bill the Administration for wheeling power over their lines, and for exchange energy account balances; the Administration would bill the non-Federal utilities for power supplied, for exchange energy account balances, and the wheeling of power over the Administration's lines. The non-Federal utility or the Administration, as the case may be, would then remit to the other party the net balance in money due for the billing period.

POWER SITUATION

Review of fiscal year 1959.—Streamflow resources early in the fiscal year were running near or below critical levels. The flows increased to above median levels late in September and continued to run well above median throughout the remainder of the year. The high level of streamflow permitted all firm and nonfirm loads to be served from hydrogeneration with many of the plants on the Columbia River from Grand Coulee downstream spilling almost continuously. Energy loads were running 200,000 to 300,000 kilowatts below estimates in July and August 1958 but recovered to near estimated levels by October as a result of increased economic activity. Interruptible industrial loads, generally following the aluminum market demand, diminished to 22,000 kilowatts in July 1958, increased to about 260,000 kilowatts from November through January, then reduced gradually to 175,000 kilowatts by the end of May. By the end of June, however, this load had increased again to 260,000 kilowatts, which represents about 52 percent of the potential interruptible industrial load.

Fiscal year 1960, actual operation from July 1959 through November 30, 1959.—Streamflow resources of the Federal system averaged well above the median level for the first 5 months of fiscal year 1960. All firm and nonfirm loads were served from streamflow resources. Hydroplants on the Columbia River were spilling almost continuously during this 5-month period.

Firm loads are substantially higher than those of a year ago. The increase is from improvement in general business activity and a return to normal winter weather conditions. But for the strikes in the steel, copper, and other industries during the fall of 1959, this growth of firm loads would have been greater. Now that most of the strike-affected plants have resumed production, firm load levels are expected to continue their upward climb. On the other hand, interruptible power deliveries to the aluminum industries continue to be substantially below plant capacities.

Fiscal year 1960, estimated operation from December 1, 1959, through June 30, 1960.—Power operation studies projected through the balance of the fiscal year indicate that all firm and nonfirm loads will continue to be served from hydrogeneration. Considerable storage will probably be spilled in order to provide flood control space for the spring runoff period.

Outlook for future years (1960–70).—Under critical hydro conditions, on the basis of present Federal installation schedules, all firm requirements of the public agencies, private utilities and industries can be served through 1963–64. Declining amounts of power will be available for interruptible loads through 1962–63. Beginning with the 1964–65 period, power available from the Federal system for the privately owned utilities rapidly decreases due to the increasing demands of the preference customers.

Under median month streamflow conditions, practically all requirements of the public agencies, industries and privately owned utilities can be served through 1968–69. Substantial blocks of power will be available for interruptible industrial loads until 1966–67.

FINANCIAL POSITION

The accounts of the commercial power operations of the Columbia River power system, which includes the Bonneville Power Administration's transmission network and the hydroelectric generating projects of the Bureau of Reclamation and the Corps of Engineers for which the Bonneville Power Administration is the marketing agent, are subject to an annual commercial type audit by the General Accounting Office. A summary of the financial results of operations for fiscal year 1959 and a forecast for 1960 and 1961 appear below.

Revenues and expenses, fiscal year 1959.—Gross revenues for the 1959 fiscal year were $68,135,885,[1] an increase of $1,406,775, or 2.1 percent over 1958. Six generating units with a nameplate rating of 387,250 kilowatts were added to the system in fiscal year 1959.

Sales to the aluminum industry in 1959 were off 5 percent from 1958, or from $17,491,535 in 1958 to $16,611,144 in 1959. The sales of firm power to the aluminum industry increased slightly but the sales of nonfirm declined $1.1 million.

Other industrial sales rose from $3,412,720 in 1958 to $3,817,628 in 1959, an increase of 11.9 percent. This increase reflects some improvement in business operations.

Sales to Federal agencies increased 5.8 percent from $6,054,126 in 1958 to $6,403,146 in 1959. This increase is due almost entirely to the additional energy taken by the Atomic Energy Commission at Hanford, Wash.

Sales to private electric utilities decreased from $14,171,346 in 1958 to $13,897,884 in 1959, a drop of 1.9 percent. This was due to additional installations of their own generation. Sales to municipalities, public utility districts and others were up 8.7 percent from $23,574,281 in 1958 to $25,629,336 in 1959.

Total sales of electric energy for 1959 thus were $66,359,138 as compared with $64,704,008 in 1958, an increase of 2.6 percent. However, electric revenues from sources other than the sales of energy decreased in 1959 to $1,776,747 from $2,025,102 in 1958, a 12.3 percent decrease. Although wheeling revenues increased in 1959, this 12.3 percent drop in total miscellaneous revenues occurred because the prior year included two fairly substantial sums arising out of transfer and storage services that were not required by customers in 1959.

Of the $68,135,885 gross revenues of the Columbia River power system in fiscal year 1959, $19,124,927, or 28.1 percent, was applied to operating and maintenance cost, $25,434,609, or 37.3 percent, was applied to depreciation expense, and $30,186,169, or 44.3 percent, was applied to interest expense, leaving a deficit for the fiscal year 1959 of $6,609,820, or 9.7 percent, of gross revenue.

Cumulative revenues and expenses from inception to June 30, 1959.—Total operating revenues of the commercial power operations of the Columbia River power system from inception to June 30, 1959, were $664,070,854. Of this amount $178,573,955, or 26.9 percent, was applied to operation and maintenance cost, $170,745,100, or 25.7 percent, was applied to depreciation expense, and $219,599,782, or 33.1 percent, was applied to interest expense, leaving net revenues of $95,152,017, or 14.3 percent.

Forecast for fiscal years 1960 and 1961.—The total operating revenues of the Columbia River power system are estimated to be $74,500,000 for fiscal year 1960 and $78,900,000 for fiscal year 1961. These estimates are based on a continuation of the present wholesale power rates of the Bonneville Power Administration and reflect the growth in sales due to a general increase in consumption and some improvement in overall business conditions. There will be increases in generating capacity due to the installation of additional generators at The Dalles in 1960 and in 1961. Despite these anticipated increases in gross revenues, the present outlook is for deficits of $5,551,000 in fiscal year 1960 and $5,126,000 in fiscal year 1961. Deficits in the face of increases in gross revenues result from the fact that costs generally have risen and higher cost sources of power generation are being added to the system, but no increase has been made in the Bonneville Power Administration's wholesale rate levels.

[1] These are the combined revenues of the Columbia River power system and include revenue amounts totaling $162,200 at the generating plants as well as the revenues of the Bonneville Power Administration.

Capital investment of the U.S. Government and status of repayment as of June 30, 1959.—Total capital investment of the U.S. Government in the commercial power components of the operating projects only as of June 30, 1959, amounted to $1,626,069,849. This is shown in the tables following. The amount of this power capital investment repaid as of June 30, 1959, was $268,353,287, or 16.50 percent. After the application of this repayment, the net power capital investment in these operating projects, as of June 30, 1959, amounted to $1,357,716,562. In addition to the above repayment of capital, operating and maintenance expenses in the amount of $159,375,772, and interest expense of $219,599,782 have been repaid to June 30, 1959. The operating, maintenance, and interest expenses are repaid annually.

COLUMBIA RIVER POWER SYSTEM

Summary of Federal investment in the operating power projects and repayment as of June 30, 1959

	Gross investments	Repayments	Net investment
Expenses:			
Operation, maintenance, etc.	$159,375,772	$159,375,772	
Interest [1]	219,599,782	219,599,782	
Total expenses	378,975,554	378,975,554	
Capital:			
Invested capital [2]	1,626,069,849	268,353,287	$1,357,716,562
Unexpended appropriations	19,917,678		19,917,678
Gross capital	1,645,987,527	268,353,287	1,377,634,240
Total Federal investment	2,024,963,081	647,328,841	1,377,634,240

[1] The Columbia River power system does not receive appropriations for payment of interest, but imputes and includes in its accounts provisions for interest expense and returns receipts to the Treasury in repayment of such expense.

[2] Includes interest during construction of $77,017,422, which will be repaid to the Treasury as part of the capital cost of electric plant.

Return of Power Capital Investment in individual projects (operating projects only) as of June 30, 1959

Project	Power capital investment [1]	Repaid as of June 30, 1959	Percent repaid	Net power investment [1]
Bonneville Power Administration	$485,044,469	$121,463,727	25.04	$363,580,742
Bonneville Dam	60,455,334	27,189,288	44.97	33,266,046
Columbia Basin	207,590,313	72,307,664	34.83	135,282,649
Hungry Horse	87,882,566	8,896,496	10.12	78,986,070
Albeni Falls	31,219,953	2,448,188	7.84	28,771,765
McNary	278,598,472	21,454,194	7.70	257,144,278
Detroit-Big Cliff	41,919,614	3,940,413	9.40	37,979,201
Lookout Point-Dexter	41,706,444	2,946,339	7.06	38,760,105
Chief Joseph	154,307,853	5,638,924	3.65	148,668,929
Yakima-Kennewick and Roza	4,440,553	430,681	9.70	4,009,872
The Dalles	232,904,278	1,637,373	.70	231,266,905
Total	1,626,069,849	268,353,287	16.50	1,357,716,562

[1] Exclusive of unexpended funds in U.S. Treasury.

Cash receipts, fiscal year 1959.—Cash receipts of the Bonneville Power Administration returned to the Treasury in fiscal year 1959 were $66,575,524 compared with $67,578,884 in the preceding fiscal year. The cash receipts returned to the Treasury in fiscal year 1959 were allocated among projects as follows:

Bonneville project	$2, 300, 000
Columbia Basin project	12, 800, 000
Hungry Horse project	3, 816, 000
Albeni Falls project	1, 400, 000
Detroit-Big Cliff project	1, 900, 000
McNary project	9, 000, 000
Lookout Point-Dexter project	1, 800, 000
Yakima project	326, 000
Chief Joseph project	6, 700, 000
The Dalles project	4, 700, 000
Bonneville Power Administration	[1] 21, 833, 524
Total	66, 575, 524

[1] An additional amount of $477,150 was transferred on account of Bonneville Power Administration from prior years' receipts.

Bonneville Power Administration

Construction

Appropriation Act, 1960			$21, 450, 000
Unobligated balance from prior year			430, 124
Total available			21, 880, 124
Less amount placed in budget reserve			−422, 000
Net available for obligation			21, 458, 124
Decreases:			
Construction in progress		$12, 120, 124	
New construction		8, 707, 000	
General plant		631, 000	
			21, 458, 124
Subtotal			
Increases:			
Construction in progress:			
From budget reserve	$280, 000		
From appropriation	13, 061, 000		
		$13, 341, 000	
New construction:			
From budget reserve	142, 000		
From appropriation	6, 373, 000		
		6, 515, 000	
General plant		786, 000	
			20, 642, 000
Total program, 1961			20, 642, 000
Less amount available from prior year budget reserve			−422, 000
Total appropriation			20, 220, 000

Analysis by activities—Construction

Activities	Amount available, 1960	Decreases	Base, 1961	Estimate, 1961	Increases
1. Construction in progress	$12,120,124	$12,120,124		$13,341,000	$13,341,000
2. New construction	8,707,000	8,707,000		6,515,000	6,515,000
3. General plant	631,000	631,000		786,000	786,000
Total program	21,458,124	21,458,124		20,642,000	20,642,000
Less amount financed by carryover of prior year funds	−430,124	−430,124		−422,000	−422,000
Plus amount placed in budget reserve for use in succeeding year	422,000	422,000			
Total appropriation	21,450,000	21,450,000		20,220,000	20,220,000

1961 construction program summary

Item number and facility	Estimated cost	Obligations to June 30, 1958	Obligations, fiscal year 1959	Obligations, fiscal year 1960	Obligations, fiscal year 1961				Obligations required to complete
					Construction in progress	New construction	General plant	Total	
MAJOR GRID									
145. Portland area supervisory control and digital telemetering	$441,000	$6,000		$207,000	$188,000			$188,000	$40,000
146. Automatic load-frequency control system	213,000			110,000	38,000			38,000	65,000
150. System reactive facilities	6,377,000	2,200,000	$1,033,000	1,554,000	533,000	$410,000		943,000	647,000
155. Ice Harbor-Franklin	1,524,000	32,000	111,000	599,000	637,000			637,000	145,000
159. Big Eddy-McLoughlin	6,709,000	47,000		3,213,000	2,694,000			2,694,000	755,000
160. Hills Creek-Oakridge	413,000	15,000		130,000	213,000			213,000	55,000
168. Reston switching station	353,000	1,000		192,000	160,000			160,000	
171. Columbia-Tacoma	6,969,000	2,089,000	2,605,000	1,041,000	939,000			939,000	295,000
174. Longview substation additions	2,230,000	252,000	1,004,000	879,000	95,000			95,000	
175. Cougar-Eugene	2,580,000	477,000	701,000	181,000	480,000			480,000	741,000
180. Rocky Reach-Maple Valley No. 1	14,264,000	853,000	5,540,000	3,891,000	3,278,000			3,278,000	702,000
181. Maple Valley substation	1,590,000	160,000	71,000	630,000	555,000			555,000	174,000
182. Rocky Reach-Maple Valley No. 2	7,388,000					2,748,000		2,748,000	4,640,000
184. Hanna substation additions	244,000	61,000				148,000		148,000	35,000
Subtotal	51,295,000	6,193,000	11,065,000	12,627,000	9,810,000	3,306,000		13,116,000	8,294,000
SEATTLE AREA									
215. Lewis County service	1,695,000	1,435,000	115,000		93,000			93,000	52,000
245. Oroville area service	549,000	72,000	108,000	291,000	78,000			78,000	
246. Mason County service	312,000	57,000		80,000	175,000			175,000	
247. East Wenatchee area service	521,000					206,000		206,000	315,000
299. Other transmission facilities	859,000	38,000	75,000	397,000	158,000	176,000		334,000	15,000
Subtotal	3,936,000	1,602,000	298,000	768,000	504,000	382,000		886,000	382,000
PORTLAND AREA									
362. Fern Ridge substation	137,000	23,000				66,000		66,000	48,000
363. Hampton Butte substation	158,000	2,000				72,000		72,000	84,000
372. Lexington area service	695,000	95,000		412,000	125,000			125,000	63,000
378. Gold Beach substation additions	160,000	25,000				66,000		66,000	69,000
399. Other transmission facilities	1,284,000	176,000	73,000	435,000	110,000	335,000		445,000	155,000
Subtotal	2,434,000	321,000	73,000	847,000	235,000	539,000		774,000	419,000
SPOKANE AREA (UPPER PORTION)									
699. Other transmission facilities (subtotal)	376,000	2,000	35,000	162,000	14,000	138,000		152,000	25,000

Subtotal	2,434,000	321,000	73,000	847,000	235,000	539,000	----------	774,000	419,000
SPOKANE AREA (UPPER PORTION)									
699. Other transmission facilities (subtotal)	376,000	2,000	35,000	162,000	14,000	138,000	----------	152,000	25,000
SPOKANE AREA (LOWER PORTION)									
720. North-central Oregon service	1,382,000	17,000	----------	388,000	803,000	----------	----------	803,000	174,000
721. Harney Electric Cooperative service	2,554,000	74,000	----------	1,055,000	1,052,000	----------	----------	1,052,000	373,000
799. Other transmission facilities	416,000	----------	26,000	151,000	----------	206,000	----------	206,000	33,000
Subtotal	4,352,000	91,000	26,000	1,594,000	1,855,000	206,000	----------	2,061,000	580,000
GENERAL SYSTEM FACILITIES									
810. General structures and improvements	3,618,000	30,000	152,000	862,000	365,000	554,000	----------	919,000	1,655,000
820. Communication facilities	1,991,000	421,000	388,000	663,000	137,000	165,000	----------	302,000	217,000
830. Tools and equipment	1,813,000	----------	396,000	631,000	----------	----------	$786,000	786,000	----------
840. Preliminary engineering studies	554,000	----------	204,000	150,000	----------	200,000	----------	200,000	----------
Subtotal	7,976,000	451,000	1,140,000	2,306,000	502,000	919,000	786,000	2,207,000	1,872,000
SYSTEM ELECTRICAL FACILITIES									
871. Transformer additions	3,767,000	1,156,000	1,047,000	810,000	331,000	199,000	----------	530,000	224,000
880. Circuit breaker replacements	2,610,000	447,000	447,000	399,000	90,000	826,000	----------	916,000	401,000
Subtotal	6,377,000	1,603,000	1,494,000	1,209,000	421,000	1,025,000	----------	1,446,000	625,000
Items completed in current year	14,105,000	10,677,000	1,993,000	1,435,000	----------	----------	----------	----------	----------
Completion of prior year programs	5,670,000	703,000	4,457,000	510,000	----------	----------	----------	----------	----------
Total construction program	96,521,000	21,643,000	20,581,000	21,458,000	13,341,000	6,515,000	786,000	20,642,000	12,197,000
Balance brought forward from prior fiscal year	----------	----------	−77,000	−430,000	−280,000	−142,000	----------	−422,000	----------
Balance carried forward to succeeding fiscal year	----------	77,000	430,000	422,000	----------	----------	----------	----------	----------
Appropriation or estimate	96,521,000	21,720,000	20,934,000	21,450,000	13,061,000	6,373,000	786,000	20,220,000	12,197,000

JUSTIFICATION

The 1961 construction appropriation estimate of $20,220,000 compares with an appropriation of $21,450,000 in 1960. (See page BP16 for comparative data.)

MAJOR GRID

The 1961 program provides for additional main grid transmission capacity to transmit the output of new Federal generators being placed in operation at the Dalles, Cougar, Hills Creek, and Ice Harbor Dams, and capacity to wheel non-Federal power supplies over the Federal grid from the Priest Rapids and Wanapum projects of the Grant County Public Utility District, the Mayfield project of the Tacoma City Light, the Carmen-Trail Bridge project of the Eugene Water and Electric Board, and the Rocky Reach and Rock Island projects of the Chelan County Public Utility District. Plans for all electrical facilities are related to the construction plans and load estimates of the Northwest utilities, and of Administration-served industries.

CUSTOMER SERVICES

All proposed customer service budget items have been developed jointly by the staffs of the Bonneville Power Administration and its customers. These items, which have been shown to be needed by joint Administration-customer studies, represent that part of the total new facilities which it is the Administration's responsibility to provide under its customer service policy and within the scope of the rates charged by the Administration. Construction by customers of related new subtransmission and distribution facilities necessary to carry the power from Administration points of delivery to ultimate consumers has been agreed upon and scheduled in conjunction with the joint studies. Energization dates proposed for Administration facilities match these customers' schedules for construction of their own facilities.

All proposed items exceed the Administration's standards of minimum feasibility. That is, estimated cumulative revenues from the sale of power through the new facilities during the initial 10-year period of service are more than sufficient to cover total annual costs of the specific facilities. Hence, in addition to meeting the minimum feasibility standard, the estimated revenues are sufficient to contribute to the costs of generation and main grid transmissions.

BASIS FOR COST ESTIMATES

Estimates for the 1961 construction program were prepared using cost levels of the period January to July 1959. It is expected that material and labor costs will, in general, increase slightly over the succeeding 18 months.

MAJOR GRID

Portland area supervisory control and digital telemetering (item 145): Construction in progress $188,000

This item will provide supervisory control and digital telemetering of the Ross, Troutdale, St. Johns, Alcoa, and Oregon City substations to the Portland dispatching center. Completion of the project is scheduled for July 1961.

$188,000 will be required in fiscal year 1961 for design, purchase of the minor items of equipment, and installation.

Supervisory control has been installed at Oregon City substation and supervisory control and digital telemetering at Keeler substation. The installation of supervisory control and digital telemetering in the remaining Portland area substations will contribute to a more integrated operation, a reduction in the operating staff requirements, and considerable savings in annual costs.

Automatic load-frequency control system (item 146): Construction in progress $38,000

This item will provide centralized load-frequency control equipment on the Federal Columbia River power system to control area generation more adequately. The installation of the equipment is scheduled to be completed by August 1961.

$38,000 will be required in fiscal year 1961 for design, purchase of remainder of equipment, and installation.

Under the present method of system load-frequency control (flat frequency with time-error correction, via local control at a selected powerhouse) large load swings are imposed on the frequency regulating units. These swings are especially

onerous during periods of rapidly changing loads, and are further aggravated by the time schedule method of block loading other generating units in the Northwest Power Pool. This frequently results in large power swings over connecting ties, wide swings in system frequency, and inability to interconnect satisfactorily with other power pools.

The automatic load-frequency control will enable the Federal system to:

1. Approach more closely optimum use of available water resources by generating at all controlled plants in response to system conditions instead of block loading under time schedules.
2. Follow more efficiently actual system requirements.
3. Control better its interchange energy with other pool members.
4. Interconnect satisfactorily with other networks.
5. Adjust generation more rapidly during system emergencies.

System reactive facilities (item 150)

Construction in progress	$533,000
New construction	410,000
Total	943,000

Summary.—The addition of reactive capacity to the main transmission grid is a broad, long-range, continuing program which is related to the addition of generating capacity. The 1961 program consists of 252,000 kilovolt-ampere of capacitors in progress, and the starting of new installations, amounting to 100,000 kilovolt-ampere. The latter installations will be completed by the fall of 1962.

FUND REQUIREMENTS

Construction in progress, $533,000

1959 new starts.—$141,000 will be required in fiscal year 1961 to complete the installation of capacitors and accompanying equipment at Snohomish, Cosmopolis, Tonasket, Bell, and Fairmount substations.

1960 new starts.—$392,000 will be required in fiscal year 1961 for completion of design, purchase of minor materials, and installation of capacitors and associated equipment at Okanogan, St. Johns, and Maple Valley substations.

New construction, $410,000

1961 new starts.—$410,000 will be required in fiscal year 1961 for design and purchase of additional capacitors for the main transmission grid.

Justification.—A continuing program of capacitor additions is necessary to obtain the full salable power output of the Government's generating plants, and to achieve the most economical operation of the transmission network. More specifically, reactive installations will:

1. Permit the Government's plants to generate the maximum amount of salable power by removing the reactive burden on the generators.
2. Increase the Government's salable power supply by decreasing system losses which accompany the long-distance transmission of reactive power.
3. Raise the general voltage level of receiver-end substations, thereby improving system operations and further decreasing system losses.
4. Increase the permissible system loading without decreasing system stability.
5. Provide a measure of voltage control, as well as the reserve reactive supply needed to maintain tolerable voltage levels during system emergencies.

Ice Harbor-Franklin (item 155): Construction in progress, $637,000

This item consists of a 9-mile double-circuit 115-kilovolt line, from the Ice Harbor generating plant on the lower Snake River in southeastern Washington to the Administration's Franklin substation, two 115-kilovolt-line terminals at the Franklin substation, and relocation of one 115-kilovolt circuit breaker at Franklin. The switching facilities at Ice Harbor will be supplied by the Corps of Engineers. Completion is scheduled in August 1961.

$637,000 will be required in fiscal year 1961 for completion of surveys and design, purchase of minor materials, and the award of construction contracts for the line and terminals.

These facilities are required to transmit power into the main grid from the Ice Harbor generating plant. The full output of 310,000 kilowatts is scheduled to flow into the main grid during the winter peak period of 1961–62. A 400-foot transmission line right-of-way is being secured initially to provide for future foreseeable transmission requirements in the lower Snake area.

Big Eddy-McLoughlin (item 159): Construction in progress, $2,694,000

This item consists of an 80-mile, 345-kilovolt line, between Big Eddy and the Portland General Electric Co.'s McLoughlin substation near Oregon City, Oreg., a 230-kilovolt terminal at Big Eddy substation, and metering and relaying equipment at McLoughlin substation. The line will increase the transmission capacity into the Willamette Valley area from the mid-Columbia generating plants. All but 2 miles of the line will be built on existing right-of-way. The 38-mile Parkdale-Sandy section, which includes the Lolo Pass, will be of double-circuit construction with only one circuit strung. The line will be operated initially at 230 kilovolts.

The Portland General Electric Co. is constructing the McLoughlin substation. Except for metering equipment, the company is furnishing all of the McLoughlin terminal equipment for this line. The company's program includes a 230-kilovolt line north from this station to its Linneman substation and another south to its Bethel substation near Salem, Oreg., where it will connect to the Administration's Santiam-Chemawa 230-kilovolt line. The Pacific Power & Light Co. has constructed a 230-kilovolt line from the Administration's Troutdale substation to Linneman substation. These lines and stations will integrate the Big Eddy-McLoughlin line with the transmission system in the Portland-Salem area. Energization of the Administration's and Portland General Electric Co.'s facilities are scheduled for October 1961.

$2,694,000 will be required in fiscal year 1961 for completion of surveys and design; purchase of minor materials; and the award of construction contracts for the entire line.

This line is required to transmit power from the Dalles Dam and to wheel power on a firm basis from non-Federal plants east of the Cascade Mountains into the Portland-Salem load area for the Portland General Electric Co. Without this line in operation in the winter of 1961–62, the loading on the Big Eddy-Troutdale and the Big Eddy-Chemawa 230-kilovolt lines would be approximately 330,000 and 260,000 kilowatts, respectively. Under these loading conditions an outage of either circuit would jeopardize the power supply to the entire Willamette Valley area.

Hills Creek-Oakridge (item 160): Construction in progress, $213,000

This item includes a 5-mile 115-kilovolt line, with terminal facilities at Hills Creek and Oakridge substations. Completion of the line is scheduled for September 1961 to coordinate with the Corps of Engineers' Hills Creek generation schedule.

$213,000 will be required in fiscal year 1961 for completion of design, acquisition of land, purchase of disconnect switches, substation steel, conductor, insulators, and miscellaneous materials, and the award of construction contracts for the line and terminals.

This line is required to bring the output of the Hills Creek hydroelectric project into the Administration's transmission system. The entire output of 34,500 kilowatts will be fed into the system at the Oakridge substation.

Reston switching station (item 168): Construction in progress, $160,000

This item provides for a 230-kilovolt switching station near Reston, Oreg., on the Administration's Alvey-Fairview 230-kilovolt transmission line. Included is telemetering, supervisory control of the Reston switching station from Alvey substation, and the Government's share of the carrier current transfer-trip relaying for the Alvey-Dixonville-Fairview 230-kilovolt line at Fairview substation in order to connect the Administration's system with the California-Oregon Power Co.'s system. The Reston switching station and the relaying at Fairview are scheduled for energization in September 1960, while the supervisory control of Reston from Alvey is scheduled for energization in April 1961.

$160,000 will be required in fiscal year 1961 for minor materials and completion of construction.

The California-Oregon Power Co. will construct a 230-kilovolt line from its substation at Dixonville, Oreg., to the Administration's Reston switching station, and provide terminating facilities at Dixonville. This interconnection will in-

crease the transfer capacity between the Administration's main grid and the California-Oregon Power Co.'s system. During periods of peak load in the Portland and Willamette Valley areas, up to 100,000 kilowatts will be transmitted to the Administration at Reston. This will reduce heavy loadings on the Administration's Willamette Valley and transmountain system and will also reduce system losses. The company will benefit mainly from standby service from the Administration's grid in case of transmission or generation outages on the company's system.

Columbia-Tacoma (item 171): Construction in progress, $939,000

This item provides for a 125-mile, 287-kilovolt transmission line from the Columbia end of the Grand Coulee-Columbia line No. 3 via the Covington substation to the Tacoma substation, and a 230-kilovolt, 15-mile line between Covington and Tacoma. The Columbia-Tacoma line will be operated at 230 kilovolts. The project also includes terminal facilities at Covington and Tacoma. Because of restricted right-of-way conditions the Covington-Tacoma section will be of double-circuit construction. The Columbia-Covington section will be terminated at the Covington 230-kilovolt bus in September 1960, and extended to Tacoma in September 1961. The Covington-Tacoma line will be completed also in September 1961. At the same time the Tacoma City Light will energize its 150,000/250,000-kilovolt-ampere, 230–115-kilovolt transformer at the Tacoma substation.

$939,000 is required in fiscal year 1961 for design, award of clearing and construction contracts, and the remainder of the conductor for the Covington-Tacoma line.

The Priest Rapids hydroelectric generating plant of the Grant County Public Utility District started production in October 1959 and full production is scheduled for June 1961. This plant is located near the Midway substation which is approximately the center of the Federal grid. The effect of this plant upon the Federal system is to cause a redistribution of the power flows in the transmission network. The power flow from the Priest Rapids plant into the Midway area displaces power supplied previously from other generation. This results in greater flows of power into the Puget Sound area from the more northerly Federal generating plants. The Columbia-Tacoma project will provide the necessary capacity for these increased power flows.

Longview substation additions (item 174): Construction in progress, $95,000

This item consists of (1) installation of a 150,000/250,000-kilovolt-ampere, 230/69–13.8-kilovolt transformer bank and related terminal facilities to provide service to the Cowlitz County Public Utility District and the Reynolds Metals Co., and (2) reconnection of two 50,000/83,000-kilovolt-ampere transformer banks, now supplying the district, from 230–69–13.8-kilovolt to 230/115-kilovolt operation, including installation of terminal facilities. Energization of the transformer banks is scheduled by June 1960. Modifications in the 69-kilovolt and 115-kilovolt terminals and the relocation of the 15-kilovolt capacitors will be completed by October 1960.

$95,000 will be required in fiscal year 1961 for completion of installation of the transformers and associated facilities.

The load centers along the Columbia River from Longview to Astoria, and from Longview to St. Johns, are served by 115-kilovolt lines. The reconnected 230/115-kilovolt transformers at Longview substation will reinforce and provide additional power to this 115-kilovolt system. The 230/69–13.8-kilovolt transformer bank will provide additional 69-kilovolt capacity to the Cowlitz County Public Utility District. In addition, it will provide additional 13.8-kilovolt capacity for carrying the Reynolds Metals Co. load, thereby reducing the burden on the 75,000/125,000-kilovolt ampere, 230–13.8-kilovolt transformer bank now serving this company. This bank is frequently loaded above its overload rating.

Cougar-Eugene (item 175): Construction in progress, $480,000

This item provides for (1) the construction of a 46-mile, 115-kilovolt transmission line, including a line terminal at Cougar Dam, and (2) a 6,000-kilovolt ampere, 115–12.5-kilovolt substation. The westerly terminus will be at the Eugene Water & Electric Board's substation S, near Eugene, Oreg., and the 6,000-kilovolt ampere substation will be located in the vicinity of Blue River, Oreg. An intermediate, 18-mile section of this line from the board's Leaburg generating plant to a point 2 miles west of Blue River was energized in October

1959 to provide temporary 69-kilovolt service at Finn Rock substation to the Lane County Electric Cooperative. Energization of the complete facility at 115 kilovolts is scheduled for October 1962 when the Cougar plant will commence operations. At the same time the Blue River substation will be energized to provide permanent service to the cooperative.

$480,000 is required in fiscal year 1961 for purchase of poles, insulators, crossarms, and conductors; and award of the clearing contract for the Cougar-Blue River and Leaburg-Station S line sections.

The Cougar hydroelectric plant on the south fork of the McKenzie River will have a peaking capacity of 28,800 kilowatts and is schedule for completion by the Corps of Engineers by November 1952. The output of the Cougar plant will be integrated with the Federal grid by the Cougar-Eugene 115-kilovolt line in conjunction with a 115-kilovolt line being constructed by the Eugene Water & Electric Board which will connect its substation S with the Administration's Alvey substation.

Rocky Reach-Maple Valley No. 1 (item 180): Construction in progress, $3,278,000

This facility consists of the following:

	Scheduled energization	1961 requirements
(1) Rocky Reach-Maple Valley line, 345-kilovolt construction, 230-kilovolt initial operation, 78 miles single-circuit, 51 miles double-circuit towers with 1 circuit strung.	October 1961	$2,619,000
(2) Rocky Reach-Columbia line, 230-kilovolt, 23 miles single-circuit	June 1961	579,000
(3) 230-kilovolt terminal at Columbia substation	do	80,000
Total, budget item 180		3,278,000

Two 230-kilovolt terminals at Rocky Reach will be furnished by the Chelan County Public Utility District, and the Administration is constructing the 230-kilovolt Maple Valley substation (item 181) to serve as the western terminus of the Rocky Reach-valley line.

Fund requirements.—Rocky Reach-Maple Valley line: $2,619,000 is required in fiscal year 1961 for completion of land acquisition, contract inspection, and the award of construction contracts for the Naneum Creek-Cle Elum, Cle Elum-Easton, and North Bend-Maple Valley sections of the line.

Rocky Reach-Columbia line: $579,000 is required in fiscal year 1961 for completion of design, purchase of minor materials, and the award of a combined clearing and construction contract.

Columbia substation: $80,000 is required in fiscal year 1961 for completion of design, purchase of minor materials, and installation of the terminal facilities.

Justification.—The Rocky Reach-Columbia line, and Rocky Reach-Maple Valley No. 1 line, will provide the transmission capacity required to transmit the output of the Rocky Reach generators. The line to Columbia will be completed in advance of the remainder of the project. This line in conjunction with existing 115-kilovolt facilities, will carry the output of the machines placed in operation prior to October 1961. Rocky Reach-Maple Valley line No. 2 (item 182) is proposed to be energized in the fall of 1963. Right-of-way for 9 miles of this circuit is being obtained concurrently with right-of-way for the Rocky Reach-Maple Valley line No. 1. Approximately 5 miles of this right-of-way are for a corridor eastward from the Maple Valley substation, and the remainder is through a congested area near Keechelus Lake.

Maple Valley substation (item 181): Construction in progress, $555,000

This item consists of a major 230-kilovolt substation near Renton, Wash., interchange telemetering additions at Snohomish substation, and supervisory control of the new Maple Valley substation from the Portland dispatching headquarters. Maple Valley substation will include a terminal for the Rocky Reach-Maple Valley transmission line (item 180) and interconnections with the systems of the city of Seattle and the Puget Sound Power & Light Co. Energization is scheduled for October 1961.

$555,000 is required in fiscal year 1961 for completion of design, purchase of minor materials, and the award of a construction contract.

Power from the Chelan County Public Utility District's Rocky Reach hydroelectric plant will be delivered to western Washington load areas via the Administration's Rocky Reach-Maple Valley line, Maple Valley substation and Rocky Reach-Columbia line. Space will be provided in the Maple Valley substation for terminating the Rocky Reach-Maple Valley No. 2 line (item 182) and for other facilities needed to meet future transmission conditions.

Rocky Reach-Maple Valley No. 2 (item 182): New construction $2,748,000

Summary.—It is proposed to construct a second 345-kilovolt line approximately 129 miles in length, from the Chelan Public Utility District's Rocky Reach switchyard to the Bonneville Power Administration's Maple Valley substation. The Administration will install a 230-kilovolt terminal at Maple Valley and the district will supply the terminal at its Rocky Reach switchyard. The No. 2 circuit will consist of approximately 78 miles strung on single-circuit towers, and 51 miles strung on the open side of the double-circuit towers being erected as part of the No. 1 line. Both lines will operate at 230 kilovolt until additional transmission capacity is required into the Puget Sound area from the east. Energization is scheduled for October 1963.

Fund requirements.—$2,748,000 will be required in fiscal year 1961 for surveys, design, acquisition of land, purchase of steel and a portion of the conductor and insulators, and award of a contract for stringing that portion of the line that is to utilize the double-circuit towers of line No. 1.

Justification.—This project is necessary to transmit that portion of the power for the Pudget Sound area, beginning in the 1963–64 load period which will be supplied from Federal plants and from non-Federal plants for which the Administration has firm wheeling commitments. Plans take into account the new 115-kilovolt transmission facilities which the Puget Sound Power & Light Co. will construct to the Bremerton area by 1963 and which will increase the company's requirements at Maple Valley. A substantial part of the power requirement of the Olympia Peninsular will be supplied by the Rocky Reach-Maple Valley circuits. The second Rocky Reach-Maple Valley line will prevent excessive loading on the first line between these points and will provide more reliable service to the Puget Sound area.

The power deliveries from Maple Valley substation in 1963–64 will be such that loss of Rocky Reach-Maple Valley line No. 1 would require load curtailment in the Puget Sound area. In case of an outage of the single 230-kilovolt circuit from Rocky Reach to Maple Valley, all of the load would have to be supplied by the city of Seattle's single 230-kilovolt circuit into Maple Valley. Under this condition, the city of Seattle's and the Administration's line from the Covington substation to the Duwamish substation and the Covington terminal circuit breaker would be loaded in excess of their heating limits. To avoid damage to facilities load curtailment would be necessary.

Hanna substation additions (item 184): New construction $148,000

Summary.—It is proposed to install a 230-kilovolt line terminal with a circuit breaker and to reconnect the 230/115/13.8-kilovolt transformers at the Hanna substation. The California Oregon Power Co. serves this substation by transfer at 115 kilovolts and plans to change the transmission voltage to 230 kilovolts. Energization is scheduled for September 1961.

Fund requirements.—$148,000 is required in fiscal year 1961 for the design; purchase of 230-kilovolt disconnect switches, substation steel, and associated materials; and the award of an installation contract. The circuit breaker is available from the system.

Justification.—The Administration's Hanna substation is served by transfer from the system of the California Oregon Power Co. at 115 kilovolts. The company's transmission line for this service is constructed for 230-kilovolt operation and it plans to convert the line to this voltage. To protect the substation equipment after conversion to the higher voltage, it is necessary to install a 230-kilovolt circuit breaker in the line terminal. The 115-kilovolt circuit breaker and associated equipment now in use will be removed and used elsewhere on the system.

Lewis County service (item 215): Construction in progress $93,000

Work remaining to be performed in this item consists of (1) installing 230-kilovolt metering, totalizing and telemetering of the Tacoma City Light Mayfield hydroelectric plant generation, (2) installing 1.3 miles of control cable between the Administration's Silver Creek substation and the Mayfield plant, and (3) removing and relocating 69-kilovolt lines connected to the Silver Creek substation. Energization is scheduled for September 1961.

$93,000 is required in fiscal year 1961 for survey, design, land acquisition, and purchase of materials.

Metering and control cable are required for the interconnection of the Administration's transmission system with the 160,000-kilowatt Mayfield hydroelectric project; 69-kilovolt line connections are required to increase the capacity of the Administration's facilities in the Mossyrock-Morton area.

Oroville area service (item 245): Construction in progress $78,000

The construction of 18 miles of 115-kilovolt line from a tap on the Administration's Okanogan-Tonasket line to the vicinity of Oroville, Wash., and a 6,000-kilovolt-ampere, 115/13.8-kilovolt substation at Oroville will provide service to the Okanogan County Public Utility District. Energization of these facilities is scheduled for September 1960.

$78,000 is required in fiscal year 1961 for purchase of minor materials, and completion of construction.

The Oroville area is presently served from the Administration's Tonasket substation over the district's 34.5-kilovolt Tonasket-Oroville subtransmission line.

Mason County service (item 246): Construction in progress, $175,000

This item provides for the construction of: (1) a 3,000-kilovolt-ampere, 115–34.5-kilovolt substation on the Administration's Shelton-Fairmount 115-kilovolt transmission line No. 1 in the vicinity of Potlatch, Wash.; (2) a 1,000-kilovolt-ampere, 115–12.5-kilovolt substation on the same line in the vicinity of Duckabush, Wash.; and (3) 115-kilovolt line sectionalizing switches at each substation. These facilities will serve the Mason County Public Utility District No. 1 and are scheduled for energization in October 1960.

$175,000 will be required in fiscal year 1961 for purchase of minor materials, award of construction contracts for the substations, and force account construction of line connections.

The Mason County Public Utility District No. 1, which serves an area lying adjacent to the southwestern reaches of Hood canal, is presently served by the Tacoma City Light. This service is supplied at 12.5 kilovolts through the city's Cushman hydroelectric plant No. 2, located in the vicinity of Potlatch. The service from the Administration is scheduled to commence in November 1960 at the expiration of the district's contract for service from the city. The city concurs in the plan for Bonneville Power Administration to service this customer.

The district will construct 34.5-kilovolt transmission lines from Potlatch north to Hoodsport and south to Union, and a 34.5/12.5-kilovolt substation at each of the latter communities to serve its existing 12.5-kilovolt distribution system. The northern part of the district's 12.5-kilovolt distribution system will be connected directly to the Administration's Duckabush substation.

East Wenatchee area service (item 247): New construction, $206,000

Summary.—It is proposed to construct approximately 8 miles of 115-kilovolt transmission line from the Bonneville Power Administration's Keokuk substation to the vicinity of East Wenatchee, Wash., and there construct a 20,000/26,667/33,333-kilovolt-ampere, 115–13.8-kilovolt substation with a 13.8-kilovolt feeder position. The substation will be known as Eastmont substation and will serve the Douglas County Public Utility District. Energization of the proposed facilities is scheduled for July 1962.

Fund requirements.—$206,000 is required in fiscal year 1961 for surveys, design, and purchase of the power transformer, substation structures, disconnecting switches, poles, and crossarms.

Justification.—The Douglas County Public Utility District, a public body entitled to service under the Bonneville Project Act, has requested that the Administration supply the power requirements of its East Wenatchee service area, presently supplied by power purchased from the Chelan County Public Utility District under a power contract between the two districts. The Chelan and Douglas Public Utility Districts plan to terminate this contract upon availability of power from the Administration's Eastmont substation.

The East Wenatchee service area in Douglas County lies within the metropolitan limits of Wenatchee, Wash., located in adjacent Chelan County. In addition, the area has various agricultural activities, with concentration on the growing of fruit.

Power is presently delivered to the Douglas County Public Utility District by the Chelan County Public Utility District at the latter's Wenatchee 115–34.5-kilovolt substation. From this point, Douglas has a 34.5-kilovolt transmission system extending to its East Wenatchee service area. Due to load growths on the systems of the two districts, both this substation and the transmission facilities are heavily loaded and will shortly become inadequate.

It has been determined that the most satisfactory method of serving the Douglas County Public Utility District at East Wenatchee is for the Administration to construct the proposed transmission line and substation to provide a 13.8-kilovolt point of delivery near the District's East Wenatchee load center. This plan of service has been endorsed by both districts. The Douglas County Public Utility District will construct the necessary distribution facilities to serve its East Wenatchee loads from the proposed new delivery point, including the installation of 13.8–34.5-kilovolt transformation to supply its outlying 34.5-kilovolt system.

A further benefit of the Administration's proposed line will be its availability for service to the Bureau of Reclamation's proposed East unit pumping plant (approximately 8,000 horsepower), which is to be constructed as part of the Greater Wenatchee unit of the Chief Joseph irrigation project.

Estimated winter peak loads of the district's East Wenatchee service area are:

	Kilowatts		*Kilowatts*
1962–63	16, 800	1965–66	23, 200
1963–64	18, 800	1967–68	27, 800
1964–65	20, 900		

Other transmission facilities (item 299)

Construction in progress	$158, 000
New construction	176, 000
Total	334, 000

This general item provides for miscellaneous small system additions and improvements in northwestern Washington. The small sums involved do not warrant segregation under separate item numbers.

	Scheduled completion	1961 requirements
WORK UNDERWAY		
(a) Transformer cooling fans, Tacoma substation	September 1961	$33, 000
(b) 13.8-kilovolt feeder addition, Royal substation	April 1961	15, 000
(c) Precipitron for condenser cooling system, Tacoma substation	March 1961	14, 000
(d) Supervisory control additions for Fairmount substation, Olympia substation	September 1960	4, 000
(e) Snow guards, Chief Joseph-Snohomish lines Nos. 1 and 2	do	56, 000
(f) Corrosion protection, Port Angeles substation	January 1961	6, 000
(g) 115-kilovolt line sectionalizing switches, Pe Ell substation	September 1960	3, 000
(h) Capacitor load break disconnect switches, Tacoma substation	June 1961	13, 000
(i) Bridge replacements, Covington-Columbia lines Nos. 1 and 2	August 1960	5, 000
(j) Access road, Chief Joseph-Snohomish lines Nos. 1 and 2	do	9, 000
Subtotal, work underway		158, 000
NEW WORK		
(k) Wood-pole replacements	Fiscal year 1961	23, 000
(l) Wood-pole structure replacements, Brewster-Okanogan line	do	31, 000
(m) Battery charger replacements	do	18, 000
(n) Transformer cooling fans, Ephrata substation	September 1961	4, 000
(o) Other new work	Fiscal year 1961	100, 000
Subtotal, new work		176, 000
Total, budget item 299		334, 000

(*k*) *Wood-pole replacements*

In 1959 an inspection of more than a thousand pole butts revealed that 2 percent of the poles no longer met strength requirements because of advanced internal rot. Projecting the 2 percent replacement requirements to the 1961 program, 30 poles will be needed to be replaced in the Chehalis-Raymond, Chehalis-Longview, Kitsap-Bremerton and Covington-Columbia lines.

(*l*) *Wood-pole structure replacements, Brewster-Okanogan line*

It is proposed to replace 25 wood-pole structures on the Brewster-Okanogan line. This line is 32 years old and a planned structure replacement program has been in effect for a number of years because of advanced deterioration. As of July 1960, 192 of the 270 original structures will have been replaced.

(*m*) *Battery charger replacements*

It is proposed to replace battery chargers with new automatic chargers in the following unattended substations: Brewster, Long Beach, Mason, Morton, Naselle, Moses Lake, Nilles Corner, Pe Ell, Royal, South Elma, and Okanogan. Automatic chargers will maintain proper float voltage, and prevent loss of battery life because of sulfation and overcharging. Nonautomatic charging results in a reduction of battery capability of 30 percent to 50 percent in the first few years of service. Thus, failure of a battery in a substation affects relay and breaker operation, and in many stations communication facilities and other emergency load as well. It is estimated that proper charging will extend battery life to 35 or 40 years from the present 18 or 20 years.

(*n*) *Transformer cooling fans, Ephrata substation*

It is proposed to install transformer cooling fans in Ephrata substation. Load estimates show that the 12,000-kilovolt-ampere self-cooled rating of the Ephrata transformer will be exceeded by January 1962. By installing fans, the capacity of the transformer can be increased by 18,000 kilowatts, and addition of new transformer capacity at this substation can be deferred for approximately 9 years. Estimated January peak loads are as follows:

	Kilowatts		*Kilowatts*
1960	10,300	1964	13,900
1961	11,200	1965	14,800
1962	12,100	1967	16,500
1963	13,000	1969	18,100

(*o*) *Other new work*

Other types of work proposed are construction of access roads; relocations and replacements of transmission line structures, control cables, relays, meters, and lightning arresters; and installations of disconnecting switches, feeder circuit breakers and other apparatus to correct voltages, overloads and switching difficulties.

PORTLAND AREA

Fern Ridge substation (item 362): New construction $66,000

Summary.—It is proposed to construct a 3,000-kilovolt-ampere, 115–12.5-kilovolt substation on the Administration's Eugene-Mapleton 115-kilovolt transmission line, approximately 12 miles west of Eugene in the vicinity of Veneta, Oreg., for service to the Lane County Electric Cooperative. This substation is scheduled for energization in September 1961.

Fund requirements.—$66,000 is required in fiscal year 1961 for design, purchase of land and materials, and award of the construction contract.

Justification.—The Lane County Electric Cooperative presently serves its loads in the rural areas south and west of Eugene, Oreg., from a 4,500-kilovolt-ampere, 12–34.5-kilovolt transformer located in the Administration's Eugene substation. From this point of delivery, the cooperative extends a 34.5-kilovolt subtransmission line south and west to its West 11th and Fox Hollow substations where this voltage is transformed to the distribution voltage of 12.5 kilovolt.

Loads on the cooperative's 12.5-kilovolt system in this area have been increasing to the point where poor voltage conditions are being experienced during times of peak load. In addition, the capacity of the Administration's existing 12–34.5-kilovolt transformation at Eugene substation will soon be exceeded.

Engineering studies conducted jointly by the Administration and the cooperative demonstrate that construction by the Administration of the proposed substation is more economical on an overall cost basis than the alternative of the Administration adding more transformer capacity at Eugene and the cooperative constructing 12 miles of 34.5-kilovolt line into the Veneta area together with a 34.5-kilovolt stepdown substation at Veneta.

Estimated winter peak loads to be served by the Lane County Electric Cooperative from the proposed Fern Ridge point of delivery are:

	Kilowatt		*Kilowatt*
1961–62	2,200	1964–65	2,650
1962–63	2,350	1966–67	2,950
1963–64	2,500	1968–69	3,300

Hampton Butte substation (item 363): New construction, $72,000

Summary.—It is proposed to construct a 3,000-kilovolt-ampere, 115–14.4/24.9-kilovolt substation on the Administration's Redmond-Burns 115-kilovolt transmission line, approximately 53 miles east of Bend, Oreg., for service to the Central Electric Cooperative. Energization of this substation is scheduled for November 1961 to coincide with the energization date of the Redmond-Burns transmission line. The Administration will not expend funds on the Hampton Butte substation, however, until the cooperative arranges financing for the construction of a new distribution system in this area.

Fund requirements.—$72,000 is required in fiscal year 1961 for design, and purchase of major materials.

Justification.—The Hampton Butte area lies in the northeast portion of Deschutes County and the southwest portion of Crook County and includes the areas of upper Camp Creek and Bear Creek, and the communities of Brothers and Hampton.

Central station power is not available in the area. Although the Central Electric Cooperative has received numerous requests for service, the extension of its lines into the area heretofore has not been feasible, due principally to the long subtransmission line and stepdown substation required.

Under the proposed plan of service whereby the Administration would construct a substation with a 14.4/24.9-kilovolt point of delivery, energized from the Redmond-Burns 115-kilovolt line, service could be rendered on an economical basis. To serve this area, the cooperative would construct approximately 50 miles of distribution circuits from the Administration's substation and would continue to extend its lines as new loads develop.

The principal resource of the area is the production of livestock and agriculture, the latter being limited to alfalfa and grass hay. Most of the ranchers in the area will increase their cultivated acreage when power is available for irrigation pumping.

A large supply of bentonite near Camp Creek is being mined on a limited scale. With electric power available, it is estimated that this operation will expand in keeping with the demand for this product in the Northwest.

The estimated August peakloads of the cooperative to be served from this new point of delivery are as follows:

	Kilowatts		*Kilowatts*
1962	600	1965	1,200
1963	800	1971	2,400
1964	1,000		

Lexington area service (item 372): Construction in progress $125,000

This facility consists of a 115-kilovolt switching station, with supervisory control, in the vicinity of Lexington, Wash., and 4 miles of single circuit 115-kilovolt transmission line looping the Administration's Longview-Chehalis 115-kilovolt transmission line into the switching station. These facilities will provide an additional point of delivery for the Cowlitz County Public Utility District. Energization is scheduled for September 1961.

$125,000 is required for fiscal year 1961 for purchase of minor materials, and award of construction contracts.

The Cowlitz County Public Utility District is presently served from the Administration's Cowlitz substation at 13.8 kilovolt and Longview substation at 69 kilovolt. The eastern portion of the district's service area, supplied from the Longview substation, is becoming heavily loaded. The Administration will construct the 115-kilovolt Lexington switching station, and the district will construct its own substation facilities to transform the voltage from 115 to 12 kilovolt, and will construct later a 115-kilovolt line from its point of delivery at Lexington southward to a point on the Administration's Cardwell-Cowlitz 115-kilovolt line, thereby forming a 115-kilovolt loop around the Longview-Kelso area.

In planning the Lexington substation, consideration has been given to future load and system requirements of the Longview and Lower Columbia River area. These studies show that additional transformer and transmission capability will be needed in this area as John Day, and other upstream generation, is developed. Accordingly, transmission line corridors are being acquired at this time to avoid future acquisition difficulties as the economy of the Longview-Kelso area expands.

Gold Beach Substation additions (item 378): New construction $66,000

Summary.—It is proposed to construct a 115-kilovolt terminal position, complete with circuit breaker and metering, in the Administration's Gold Beach substation for service to the Coos-Curry Electric Cooperative. The energization of this terminal position is scheduled for October 1961.

Fund requirements.—$66,000 is required in fiscal year 1961 for design, and purchase of a 115-kilovolt circuit breaker, disconnecting switches, and a steel structure.

Justification.—The Coos-Curry Electric Cooperative presently serves its loads in the Gold Beach-Brookings area from a 69-kilovolt point of delivery in the Administration's 15,000-kilovolt-ampere, 115-69-kilovolt Gold Beach substation. The cooperative's requirements in the community of Gold Beach are supplied by the cooperative's 69–12.5-kilovolt substation, adjacent to the Administration's Gold Beach substation, while the requirements in the Brookings area, near the California border, are served over the cooperative's two 69-kilovolt transmission lines between Gold Beach and Brookings. One of these lines, energized in the fall of 1958 at 69 kilovolts, is constructed for 115-kilovolt operation. The cooperative has requested the Administration to provide the necessary 115-kilovolt facilities at Gold Beach to permit operating this line at 115 kilovolts.

Construction of the proposed new 115-kilovolt terminal facilities will avoid the necessity of the Administration's installing additional 69-kilovolt transformer capacity in the Gold Beach substation to serve the cooperative's increasing loads, will reduce the cooperative's transmission losses and will provide for a greater interchange of energy between the Administration and the California-Oregon Power Co. via the cooperative's transmission facilities.

The estimated winter peak loads of the Coos-Curry Electric Cooperative to be served from the Gold Beach substation are:

[Kilowatts]

	1961–62	1962–63	1963–64	1964–65	1966–67	1968–69
At 69 kilovolts	5,900	6,500	7,000	7,500	8,500	9,500
At 115 kilovolts	12,400	13,500	14,600	15,700	17,900	20,100

Other transmission facilities (item 399)

Construction in progress	$110,000
New construction	335,000
Total	445,000

This general item provides for miscellaneous small system additions in southwestern Washington and western Oregon. Sums involved are small and do not warrant segregation under separate item numbers.

	Scheduled completion	1961 requirements
WORK UNDER WAY		
(a) Bushing tap kits	June 1961	$4,000
(b) Corrosion protection, Alvey and Troutdale substations	December 1960 to February 1961.	37,000
(c) 115-kilovolt line sectionalizing switches, Albany-Eugene line	August 1960	4,000
(d) Annunciator panel and oscillograph, Redmond substation	March 1961	15,000
(e) Control cable replacement, Ross substation	July 1960	5,000
(f) Substation operators training center, Ross substation	February 1961	45,000
Subtotal, work under way		110,000
NEW WORK		
(g) 230-kilovolt circuit breaker, Redmond substation	November 1961	40,000
(h) Wood-pole replacements	Fiscal year 1961	46,000
(i) 115-kilovolt circuit breaker, Bandon substation	November 1961	35,000
(j) Corrosion protection, J. D. Ross substation	March 1961	30,000
(k) 115-kilovolt line sectionalizing switches	July 1961	56,000
(l) Battery charger replacements	Fiscal year 1961	25,000
(m) Disconnect switch grounding blades	August 1961	3,000
(n) Other new work	Fiscal year 1961	100,000
Subtotal, new work		335,000
Total, budget item 399		445,000

JUSTIFICATIONS FOR NEW WORK

(g) 230-kilovolt circuit breaker, Redmond substation

It is proposed to install a 230-kilovolt circuit breaker in the Redmond substation. This substation is an important power interchange point with the California Oregon Power Co. and is the system connection point for the Pelton powerplant of the Portland General Electric Co. There are now three 230-kilovolt circuit breakers in service at this substation. It is proposed to add another 230-kilovolt circuit breaker as a combination bus tie and transformer breaker for the following reasons:

1. The present transformer protection requires the clearing of the entire 230-kilovolt bus for transformer faults and this condition separates the Administration's system from the interconnections with California Oregon Power Co. and Portland General Electric Co.

2. When a circuit breaker is out of service at Redmond for maintenance (10 to 14 days for a complete overhaul), it is necessary to tie two lines together on the auxiliary bus. During these periods, the relaying time is inherently slow, and a fault on either of the two lines will interupt service to the Redmond area. This method of operation is also unsatisfactory to California Oregon Power Co. as it is unable to coordinate the relays within its system to this slow clearing time.

(h) Wood-pole replacements

In 1959 an inspection of more than a thousand pole butts revealed that 2 percent of the poles did not meet strength requirements because of advanced internal rot.

Projecting the 2 percent replacement requirements to the 1961 program, 50 poles will need to be replaced in the St. Johns-Oregon City No. 1 and No. 2, Oregon City-Chemawa No. 1 and No. 2, St. Johns-Longview, Longview-Astoria and Ross-Carborundum lines.

(i) 115-kilovolt circuit breaker, Bandon substation

It is proposed to install a 115-kilovolt circuit breaker in the Gold Beach line terminal of the Bandon substation. The 115-kilovolt line between Fairview and Gold Beach is 75 miles long and serves 6 substations. It runs parallel to the southern Oregon coast and has been subjected to 39 outages in 7 years; 32 of these were momentary, 3 were of 1-hour duration or longer, and 4 were less than 1 hour. These outages were caused by lightning, wind, trees in the line and salt fog con-

tamination, and occurred in the 50-mile section between Bandon and Gold Beach. Installation of a circuit breaker at Bandon will serve two purposes: (1) It will isolate the most hazardous section of line south of Bandon so that service at Norway and Bandon to the Coos-Curry Cooperative, City of Bandon and the Pacific Power & Light Co. will not be interrupted; (2) it will reclose after momentary outages thus reducing interruptions of service to a minimum.

(*j*) *Corrosion protection, J. B. Ross substation*

A field investigation of corrosion conditions at J. D. Ross substation shows that cathodic protection is needed to protect the underground installations located in the north section of the switchyard.

(*k*) *115-kilovolt line sectionalizing switches*

It is proposed to install 115-kilovolt line sectionalizing switches at the following points: Fairview-Gold Beach line on the south side of Langlois substation and on the south side of Giesel Monument substation, Albany-Eugene line on the north side of Harrisburg substation and the south side of Junction City substation, and the Albany-Toledo line on the east side of Wren substation. Wren, Langlois, Junction City, Harrisburg, and Giesel Monument substations all have or will have two sources of supply available. Outages have resulted in loss of service to these substations. Typical conditions are: seven outages in 7 years on the Fairview-Gold Beach line and three outages in 3 years on the Albany-Toledo line. The outages were from 40 minutes to 3 hours and 47 minutes in duration. Installation of sectionalizing switches will reduce customer interruption to a minimum.

(*l*) *Battery charger replacements*

It is proposed to replace battery chargers with new automatic chargers in the following unattended substations: Burnt Woods, Camas, Cottage Grove, Detroit, Lebanon, Lookingglass, Port Orford, Salem Alumina, Springfield, Harrisburg, Lookout Point, Walton, Warren, Westport and South Bank. Automatic chargers will maintain proper float voltage, and prevent loss of battery life because of sulphation and overcharging. Nonautomatic charging results in a reduction of battery capability of 30 to 50 percent in the first few years of service. Thus, failure of a battery in a substation affects relay and breaker operation, and in many stations communication facilities and other emergency load as well. It is estimated that proper charging will extend battery life to 35 or 40 years from the present 18 or 20 years.

(*m*) *Disconnect switch grounding blades*

It is proposed to install a ground switch on the Port Orford-Gold Beach 115-kilovolt line in Port Orford substation. A ground switch associated with a line sectionalizing switch has the following advantages safetywise:

1. It is interlocked with the sectionalizing switch, thereby greatly reducing the possibility of accidental energization of the line through unauthorized actions.
2. In the case of accidental energization of the associated line section, it causes faster and more positive relay action.
3. It provides a positive test to assure a line has been deenergized before workmen contact the circuit with their portable grounds.
4. It provides added protection while fault locator equipment is being installed at a line terminal.

(*n*) *Other New Work*

Other types of work proposed are construction of access roads; relocations and replacements of transmission line structures, control cable, relays, meters, and lightning arresters; and installations of disconnecting switches, feeder circuit breakers, and apparatus to correct voltages, overloads, and switching difficulties.

SPOKANE AREA—UPPER PORTION

Other transmission facilities (item 699)

Construction in progress	$14,000
New construction	138,000
Total	152,000

This general item provides for miscellaneous small system additions and improvements in northwestern Washington, northern Idaho, and western Montana, which involve small sums and do not warrant segregation under separate item numbers.

	Scheduled completion	1961 requirements
WORK UNDERWAY		
(a) 115-kilovolt line sectionalizing switches, Deer Park substation	August 1960	$9,000
(b) Corrosion protection, Bell substation	Fiscal year 1962	5,000
Subtotal, work underway		14,000
NEW WORK		
(c) Crossbraces for wood-pole structures	Fiscal year 1961	11,000
(d) Battery charger replacements	do	19,000
(e) Transformer cooling fans, Bonners Ferry substation	September 1961	3,000
(f) Disconnect switch grounding blades	August 1961	5,000
(g) Other new work	Fiscal year 1961	100,000
Subtotal, new work		138,000
Total, budget item 699		152,000

JUSTIFICATIONS FOR NEW WORK

(c) *Crossbraces for wood-pole structures*

It is proposed to install crossbraces on 60 wood-pole structures in the Grand Coulee-Bell lines No. 1 and No. 2. These lines pass over areas in which the ground is unstable. The wood-pole structures in these areas must be straightened periodically to prevent them from falling over. Installation of the crossbraces will stabilize the structures.

(d) *Battery charger replacements*

It is proposed to replace battery chargers with new automatic chargers in the following unattended substations: Athol, Bonners Ferry, Clarkston, Colfax, Creston, Kalispell, Metaline Falls, Newport, Pomeroy, Silver Bow, Columbia Falls, Deer Park, Valley Way, and Trego. Automatic chargers will maintain proper float voltage, and prevent loss of battery life because of sulphation and overcharging. Nonautomatic charging results in a reduction of battery capability of 30 to 50 percent in the first few years of service. Thus, failure of a battery in a substation affects relay and breaker operation, and in many stations communication facilities and other emergency load as well. It is estimated that proper charging will extend battery life to 35 or 40 years from the present 18 or 20 years.

(e) *Transformer cooling fans, Bonners Ferry substation*

It is proposed to install transformer cooling fans in Bonners Ferry substation. The latest load estimates show that the 6,000-kilovolt-ampere self-cooled rating of the Bonners Ferry transformer will be exceeded by January 1962. By installing fans, the capacity of the transformer can be increased to 8,000 kilowatts and

addition of new transformer capacity at this substation can be deferred for approximately 5 years. Estimated January peak loads are as follows:

	Kilowatts		*Kilowatts*
1960	5, 200	1963	6, 800
1961	5, 700	1964	7, 300
1962	6, 200	1965	7, 800

(*f*) *Disconnect switch grounding blades*

It is proposed to install grounding switches on the Sandpoint-Bonners Ferry-Troy 115-kilovolt line in Bonners Ferry substation on the Sandpoint and Troy line terminals. Grounding switches associated with line sectionalizing switches are desirable from a safety standpoint as they have the following advantages safetywise:

1. They are interlocked with the sectionalizing switch thereby greatly reducing the possibility of accidental energization of the line through unauthorized actions.
2. In the case of accidental energization of the associated line section, they cause faster and more positive relay action.
3. They provide a positive test to assure a line has been deenergized before workmen contact the circuit with their portable grounds.
4. They provide added protection while fault locator equipment is being installed at a line terminal.

(*g*) *Other new work*

Other types of work proposed are construction of access roads; relocations and replacements of transmission line structures, control cable, relays, meters, and lightning arresters; and installations of disconnecting switches, feeder circuit breakers, and apparatus to correct voltages, overloads, and switching difficulties.

SPOKANE AREA—LOWER PORTION

North Central Oregon service (Item 720): Construction in progress $803,000.

This item provides for the construction of a 51-mile, 115-kilovolt transmission line, from the Administration's De Moss substation to Fossil, Oreg., via Condon. The line will be initially operated at 69-kilovolt. Also included in this item is the conversion of an existing terminal position at De Moss substation, a 69-kilovolt point of delivery to the Columbia Basin Electric Cooperative from a tap on the line in the vicinity of Condon, and the construction of a switching station in the vicinity of Fossil which will connect to the Columbia Power Cooperative's existing Antelope-Service Creek 69-kilovolt line. These facilities will serve the Columbia Basin Electric Cooperative, the Columbia Power Cooperative, and the Wasco Electric Cooperative, and are scheduled for energization in October 1961.

Eight hundred and three thousand dollars is required in fiscal year 1961 for acquisition of land, purchase of minor materials for the line, purchase of materials for the Fossil switching station, award of a right-of-way clearing contract, and award of contracts for the construction of the line and the Fossil station.

The Wasco Electric Cooperative, the Columbia Power Cooperative, and the Columbia Basin Electric Cooperative are all customers of the Administration in the north central Oregon area, and are all served by transfer over Pacific Power & Light Co.'s 69-kilovolt facilities between The Dalles and Maupin, with the Columbia Basin Electric Cooperative being further served by transfer over the company's 23-kilovolt facilities between Fossil and Mayville. Other facilities serving the area are leased lines. The Administration leases the Maupin-Antelope 69-kilovolt line from the Wasco Electric Cooperative, and the Antelope-Fossil-Kinzua-Service Creek 69-kilovolt line from the Columbia Power Cooperative.

Power is presently delivered at 69-kilovolt to the Wasco Electric Cooperative at Tygh Valley and at Antelope, at 69-kilovolt to the Columbia Power Cooperative at Kinzua and at Service Creek, and at 23-kilovolt to the Columbia Basin Electric Cooperative at Mayville. In addition, the Administration transfers power to the Pacific Power & Light Co. at Fossil. The distances from these points of delivery to the source of power in the Administration's The Dalles substation range from 30 to 113 miles, and voltage regulation is becoming a very serious problem as the loads continue to increase. This problem is becoming particularly acute at Kinzua and Service Creek, which are situated at the extremities of the system.

The amount of power which the Pacific Power & Light Co. can transfer to the Columbia Basin Electric Cooperative in the Mayville and Condon areas is limited at present to a maximum of 1,800 kilowatts, due to physical limitations of its facilities in the area. The company has indicated that it will be unable to increase this amount to 3,000 kilowatts to meet a higher demand of the cooperative, necessary to supply increasing demands of the Army's radar installation in the vicinity of Condon.

The facilities to be constructed by the Administration will provide the necessary additional capacity in the service area, and will in addition improve voltage conditions.

Estimated winter peak loads to be served in the north central Oregon area are as follows:

[Kilowatts]

	1961-62	1962-63	1963-64	1965-66	1967-68
Wasco Electric Cooperative-Tygh Valley	3,800	3,900	4,000	4,100	4,200
Wasco Electric Cooperative-Antelope	800	900	900	1,000	1,100
Columbia Power Cooperative-Kinzua	1,480	1,540	1,610	1,750	1,900
Columbia Power Cooperative-Service Creek	1,700	1,840	1,980	2,280	2,580
Columbia Basin Electric Cooperative-Mayville and Condon	2,600	2,600	2,600	2,700	2,700
Total	10,380	10,780	11,090	11,830	12,180

Harney Electric Cooperative Service (item 721): Construction in progress, $1,052,000

This facility consists of the installation of a 69/115-kilovolt transformer at Redmond substation, and the construction of a 115-kilovolt transmission line approximately 128 miles in length from Redmond substation to the vicinity of Burns, Oreg., to supply service to the Harney Electric Cooperative. Energization of these facilities is scheduled for November 1961.

$1,052,000 is required in fiscal year 1961 for surveys, design, acquisition of land, purchase of minor materials, and award of contracts for clearing and construction of the line.

The Harney Electric Cooperative was organized in October 1954 and commenced electric service to its members in March 1957. It serves the area lying generally south of Burns, Oreg., in central Harney County and surrounding Malheur Lake. Electric power is purchased by the cooperative from the Idaho Power Co. and is received by the cooperative in the vicinity of Burns after being wheeled over a portion of the California-Pacific Utilities' 69-kilovolt transmission system. From the vicinity of Burns the cooperative has a 69-kilovolt line to its Lawen substation from where service is supplied over approximately 575 miles of distribution line.

The cooperative will extend its service to the now unserved areas in southern Harney and Malheur Counties in Oregon and northern Humboldt County in northwestern Nevada. These areas are without central station power.

To serve its expanded area the cooperative will construct approximately 190 miles of 115-kilovolt transmission line, three 115–14.4/24.9-kilovolt substations, and approximately 670 miles of distribution lines. The cooperative will take delivery from the Administration at 115 kilovolts at the terminus of the Administration's proposed 115-kilovolt transmission line in the vicinity of Burns. From this point the cooperative will construct a 115-kilovolt transmission line to its Lawen substation which will be remodeled for 115-kilovolts operation. Also from the 115-kilovolt delivery point the cooperative will construct a 115-kilovolt transmission line southward to Fields located in Oregon, McDermitt located on the Oregon-Nevada border, and Orovada located in Nevada. The cooperative will construct 115–14.4/24.9-kilovolts substations at Fields, McDermitt, and Orovada, and such facilities as may be needed to provide satisfactory voltage regulation at these stations and at Lawen substation. Construction of these 115-kilovolt facilities by the cooperative will coincide with construction of the 115-kilovolt facilities of the Administration.

The estimated August peakloads of the cooperative to be served by the Administration are as follows:

	Kilowatts		*Kilowatts*
1962	18,690	1965	23,100
1963	20,790	1970	28,450
1964	21,800		

Other transmission facilities (item 799): New construction $206,000

This general item provides for miscellaneous small system additions and improvements in southeastern Washington and eastern Oregon which involve small sums and do not warrant segregation under separate item numbers.

	Scheduled completion	1961 requirements
NEW WORK		
(*a*) Cross braces for wood-pole structures	Fiscal year 1961	$8,000
(*b*) Battery charger replacements	do	17,000
(*c*) Station service additions, Franklin substation	June 1961	7,000
(*d*) Oscillograph, McNary substation	November 1961	16,000
(*e*) 115-kilovolt line sectionalizing switches	October 1961	6,000
(*f*) Battery replacement, Midway substation	June 1961	18,000
(*g*) Prosser substation additions	September 1961	19,000
(*h*) Transformer cooling fans, and temperature indicator, Goldendale substation.	do	7,000
(*i*) Disconnect switch grounding blades	August 1961	8,000
(*j*) Other new work	Fiscal year 1961	100,000
Total, budget item 799		206,000

(*a*) *Cross braces for wood-pole structures*

It is proposed to install cross braces on 17 wood-pole structures in the Franklin-Walla Walla-North Lewiston line and 23 structures in the Benton-Franklin line. These lines pass over areas in which the ground is unstable. The wood-pole structures in these areas must be straightened periodically to prevent them from falling over. Installation of the cross braces will stabilize the structures.

(*b*) *Battery charger replacements*

It is proposed to replace battery chargers with new automatic chargers in the following unattended substations: DeMoss, Ione, Milton, North Richland, Pendleton, Prosser, Riverview, Benton, and White Swan. Automatic chargers will maintain proper float voltage, and prevent loss of battery life because of sulphation and overcharging. Nonautomatic charging results in a reduction of battery capability of 30 to 50 percent in the first few years of service. Thus, failure of a battery in a substation affects relay and breaker operation, and in many stations communication facilities and other emergency load as well. It is estimated that proper charging will extend battery life to 35 or 40 years from the present 18 or 20 years.

(*c*) *Station service additions, Franklin substation*

It is proposed to increase the capacity of the station service at Franklin substation. The existing equipment has a capacity of 150 kilovolt-amperes, which is sufficient to supply normal station service but only a third of the cooling fans and pumps on the 230-kilovolt transformer bank. It is proposed to provide service to the pumps and cooling fans from the tertiary of the 230-kilovolt transformer. Controls and wiring will be installed to accomplish this purpose.

(*d*) *Oscillograph, McNary substation*

It is proposed to install a 12-element oscillograph in relay house No. 3 at McNary substation. There are a number of quantities that cannot be monitored on the existing oscillograph installations due to the limited number of channels. It is proposed to monitor the transfer trip circuits in the 230-kilovolt McNary-Santiam-Alvey line and the 230-kilovolt McNary-Franklin line, and the phase currents in the 230-kilovolt powerhouse lines Nos. 3, 4, and 5, and the 115-kilovolt and 69-kilovolt facilities. The monitoring of the various electrical quantities of these facilities is necessary for better analyses of system trouble.

(*e*) *115-kilovolt line sectionalizing switches*

It is proposed to install sectionalizing switches in the 115-kilovolt Chenoweth-Goldendale line at Spearfish tap. This line runs through mountainous country and is subject to windstorms and ice loading. In the last 5 years three prolonged outages have occurred; two were due to icing and caused a total outage of 7 hours and 41 minutes, the third was due to a structure break and caused a 2-hour-and-41-minute outage. The load at Spearfish is increasing and cannot be served from any other delivery point and lack of a sectionalizing switch results in a

total loss of service until the line is repaired. Installation of a sectionalizing switch at the tap point will enable service to be restored to Spearfish substation in event of an outage in the 20-mile section between the tap point and Goldendale.

(f) Battery replacement, Midway substation

The present Midway battery has an 8-hour rating of 560 ampere hours. During a station service failure the battery voltage dropped below the critical operating level after 18 minutes of use. It could not carry the carrier and microwave facilities and about 25 amperes of other station emergency load, the total amounting to only 190 amperes. It is proposed to replace the present battery, which is 18 years old, with a new battery of 800-ampere-hour capacity. This battery will carry the station emergency loads for 3.5 hours or more and provide sufficient time to repair any station service facilities.

(g) Prosser substation additions

It is proposed to construct a 12.5-kilovolt feeder position, complete with revenue metering, in the Administration's Prosser substation, for service to the Benton Rural Electric Association. The load center of the Prosser portion of the Benton Rural Electric Association's system is located near the Administration's Prosser substation. The Prosser service area includes the rural vicinities outside the city of Prosser and extends approximately 4 miles north, 16 miles east, 8 miles west, and 14 miles south of Prosser.

The association presently serves this area by means of 12.5-kilovolt distribution lines from the Administration's Grandview substation, approximately 8 miles from Prosser. Due to the long distances from this point of delivery to the loads, the association is experiencing serious voltage regulation problems which will become more acute as the loads increase.

Engineering studies conducted jointly by the Administration and the association demonstrate that the latter is entitled to a point of delivery in the Prosser area. These studies also demonstrate that construction by the Administration of the proposed 12.5-kilovolt feeder position for the association in Prosser substation is the most economical method on an overall cost basis of providing service for this area.

The estimated winter peakloads to be served by the Benton Rural Electric Association are as follows:

	Kilowatts		*Kilowatts*
1961–62	1,930	1964–65	2,300
1962–63	2,050	1966–67	2,550
1963–64	2,180	1968–69	2,800

(h) Transformer cooling fans and temperature indicator, Goldendale substation

The latest load estimates show that the 12,000-kilovolt-ampere self-cooled rating of the Goldendale transformer bank will be exceeded by January 1962. This transformer bank has been designed for a capacity of 16,000 kilovolt-amperes with fans. Test reports indicate that the forced-cooled capacity may be 20,000 kilovolt-amperes or more when operated on a temperature basis. Hotspot indicating equipment is necessary to establish the maximum capacity of this transformer bank. Estimated January peakloads are as follows:

	Kilowatts		*Kilowatts*
1961	12,100	1965	15,400
1962	13,000	1967	16,200
1963	13,800	1969	17,800
1964	14,600		

(i) Disconnect switch grounding blades

It is proposed to install grounding switches on the Walla Walla-Colfax 115-kilovolt line and the Walla Walla-Pendleton 69-kilovolt line at structures 54/1s, 55/1s, and 40/3s. Grounding switches associated with line sectionalizing switches are desirable from a safety standpoint as they have the following advantages safetywise:

1. They are interlocked with the sectionalizing switch thereby greatly reducing the possibility of accidental energization of the line.
2. In the case of accidental energization of the associated line section, they cause faster and more positive relay action.
3. They provide a positive test to assure a line has been deenergized before workmen contact the circuit with their portable grounds.
4. They provide added protection while fault locator equipment is being installed at a line terminal.

(j) Other new work

Other types of work proposed are construction of access roads; relocations and replacements of transmission line structures, control cable, relays, meters, and lightning arresters; and installations of disconnecting switches, feeder circuit breakers, and apparatus to correct voltages, overloads, and switching difficulties.

GENERAL SYSTEM FACILITIES

General structures and improvements (item 810)

Construction in progress	$365,000
New construction	554,000
Total	919,000

	Station	Scheduled completion	1961 requirements
WORK UNDERWAY			
(a) Drainage system	Snohomish	June 1961	$42,000
(b) Extension of repair and test facilities for electrical apparatus	J. D. Ross	February 1961	176,000
(c) Building addition	do	do	103,000
(d) Maintenance building	D. R. Keeler	November 1960.	44,000
Subtotal, work underway			365,000
NEW CONSTRUCTION			
(e) Storage facility additions	J. P. Alvey	September 1961.	74,000
	J. D. Ross	do	32,000
(f) Roof replacements	G. H. Bell	June 1961	10,000
	J. D. Ross	October 1961	113,000
(g) Roof installation	do	July 1961	10,000
(h) Paving	Big Eddy	do	30,000
	Longview	June 1961	20,000
	Olympia	do	17,000
(i) Road relocation	Grand Coulee	do	11,000
(j) Hot-stick storage facilities	do	February 1961	5,000
	Hot Springs	do	4,000
(k) Oil piping	J. D. Ross	March 1961	60,000
	Oregon City	May 1961	23,000
(l) Electric space heating	J. D. Ross	do	3,000
(m) Supply service center	do	November 1962.	142,000
Subtotal, new construction			554,000
Total, budget item 810			919,000

(a) Drainage system, Snohomish substation

This item provides for construction of a concrete drainage line at the Snohomish substation. $42,000 is required in fiscal year 1961 for completing construction.

The concrete line will drain the switchyard area, eliminate the maintenance of ditches, and increase the synchronous condenser capacity by disposing of the cooling water.

(b) Extension of repair and test facilities for electrical apparatus, Ross substation

This item provides floor space and test equipment at Ross substation for rehabilitation of electrical power equipment, development of diagnostic test techniques to evaluate the adequacy of inservice equipment, and investigations of equipment failures.

$176,000 is required in fiscal year 1961 for design, completion of construction of the building, purchase of minor materials, and installation of equipment.

The facilities will enable the Administration to make adequate repairs on most of its high-voltage equipment. These facilities are also basic to engineering studies of reduced insulation, higher operating voltages, improved standards, switching methods, lightning protection, and manufacturers' products.

(c) Building addition, Ross substation

This item provides a two-story addition of 3,680 square feet of floor space to district office building No. 1 at the Ross substation.

$103,000 will be required in fiscal year 1961 for award of the construction contract.

This addition will be used to house the instrument repair, standardization, and shipping and receiving activities currently located in the Ross maintenance garage building.

(d) Maintenance building, Keeler substation

This item provides a 20- by 60-foot wood-frame headquarters building, with lights, plumbing, heat, and parking area, for communications, relay, and meter personnel.

$44,000 will be required in fiscal year 1961 for award of the construction contract

The new space is needed for shop facilities, desks, and storage cabinets of the maintenance crews.

(e) Storage facility additions, Alvey and Ross substations

This item consists of (1) the addition of a 50- by 100-foot steel-frame, metal-covered structure to the existing warehouse building at J. P. Alvey substation with 50,000 square feet of paved, fenced outside storage and (2) a 30- by 100-foot metal-covered building at J. D. Ross substation with an interior loading dock and 4,000 square feet of rock-surfaced outside storage.

$74,000 is required in fiscal year 1961 for design and construction of the Alvey addition and $32,000 will be required for design and construction of the new building at Ross.

The addition at Alvey substation will provide covered storage for bulk stock, reels, and many other items which cannot be accommodated in the existing warehouse building. The fencing and paving of the outside area will provide better operating conditions in the use of lift trucks and other equipment.

The storage building at Ross substation will replace four temporary wooden buildings which should be replaced because of their deteriorated condition and fire hazard.

(f) Roof replacements, Bell and Ross substations

It is proposed to replace the roofs of seven buildings at the J. D. Ross substation and the roof on the control house at the G. H. Bell substation. The seven buildings at Ross substation are the control house, shop building, untanking tower, automotive shop, paint and oil storage building, technical laboratory, and area operation and maintenance headquarters. This work includes removal and replacement of the old roofs and replacement or repair of the insulation, flashing, and other drainage devices.

$113,000 will be required in fiscal year 1961 for the roof replacements of the seven buildings at J. D. Ross and $10,000 will be required for replacing the roof of the G. H. Bell control house.

These roofs have been extensively repaired during recent years, and repairs beyond fiscal year 1960 would be unsatisfactory and excessive in cost.

(g) Roof installation, Ross substation

It is proposed to construct a 50- by 27-foot aluminum-covered roof over the loading dock of the tool warehouse.

$10,000 will be required in fiscal year 1961 for the complete project.

The loading dock is a shipping and receiving center for small tools and equipment. This roof will provide protection in assembling orders for shipment and in receiving incoming shipments. The roof will also make this space available for temporary storage.

(h) Paving, Big Eddy, Longview, and Olympia substations

This item consist of paving 2,200 feet of entrance road to Big Eddy substation, 470 feet of entrance road and 27,500 square feet of parking area at Longview substation, and 170 feet of entrance road and 12,000 square feet of service area at the Olympia substation. Preparation of the road-bed, and drainage facilities are included.

The estimated total costs are $30,000 at Big Eddy, $20,000 at Longview, and $17,000 at Olympia, all of which is scheduled for obligation in fiscal year 1961.

There is a large volume of traffic at these substations, which are headquarters for maintenance and operation crews. The constant use of the present graveled roads causes ruts and chuck holes which require considerable maintenance.

(i) *Road relocation, Grand Coulee microwave station*

It is proposed to relocate and improve 740 feet of the access road to the Grand Coulee microwave headquarters station.

The estimated total cost is $11,000, all of which is scheduled for obligation in fiscal year 1961.

The station is situated 105 feet above the highway, and the road as originally acquired has an 18-percent grade. The proposed relocation will reduce the grade to below 8 percent which will eliminate the difficulty and hazard now experienced by the crew in reaching this field headquarters in bad weather.

(j) *Hot-stick storage facilities, Grand Coulee and Hot Springs maintenance headquarters*

It is proposed to construct insulated, vertical hot-stick rooms, with electric heat, at Grand Coulee and Hot Springs maintenance headquarters.

The estimated total costs are $5,000 at Grand Coulee and $4,000 at Hot Springs, all of which is scheduled for obligation in fiscal year 1961.

The present hot-stick storage has insufficient dry air circulation. The proposed rooms will correct this condition. The vertical arrangement will prevent abrasions of hot sticks during handling.

(k) *Oil piping, Ross and Oregon City substations*

This item consists of the replacement of all underground oil piping installed at J. D. Ross substation prior to 1944, and the installation of oil piping at Oregon City substation from the oil storage tanks to the 115-kilovolt yard and to the power transformer bank.

The estimated cost is $60,000 at J. D. Ross and $23,000 at Oregon City, all of which is scheduled for obligation in fiscal year 1961.

At J. D. Ross substation corrosion leaks in the metal oil pipe have caused loss of oil and pressure and entry of water and sand. Replacement of the metal pipe with plastic pipe is proposed.

At Oregon City substation it is necessary to install a large amount of temporary oil lines and hoses when maintenance work is required on any of the nine 115-kilovolt oil circuit breakers, the transformer bank, or the two 57-kilovolt oil circuit breakers. This method of maintenance is high in cost. Installation of the proposed oil-handling facilities will provide piping and hydrants in the yard where connections to the equipment can easily be made.

(l) *Electric space heating, Ross substation*

It is proposed to replace the present electric heaters in the control room at J. D. Ross substation with 12-kilowatt heaters of a more efficient type.

The estimated total cost is $3,000, all of which is scheduled for obligation in fiscal year 1961.

Installation of these heaters will provide adequate room temperature during the winter months.

(m) *Supply service center, Ross substation*

This item consists of the construction of (1) a 200- by 500-foot fireproof warehouse, 457,000 square feet of outdoor storage facilities, and a railroad spur; (2) salvage facilities, including a new 6,400-square foot building and 185,000 square feet of outdoor storage; and (3) roadways, fencing, yard lighting, water service, and a sanitary system. Completion is scheduled November 1962.

$142,000 is required in fiscal year 1961 for design of the buildings and part of the construction work on the grading, roadways, and salvage facilities.

The Administration's principal supply service center is now located in the Maritime Administration's World War II shipyard on the Columbia River in the eastern portion of the city of Vancouver, Wash. The Maritime Administration has declared the entire Vancouver shipyard facility surplus and has turned it over to the General Services Administration for disposal. It will therefore be necessary for the Administration to obtain a new supply center. It is proposed to construct a center at the J. D. Ross substation, which is the headquarters for the Administration's transportation, shop, laboratory, tool, and construction activities.

Communications facilities (item 820)

Construction in progress	$137,000
New construction	165,000
Total	302,000

	Scheduled completion	1961 requirements
WORK UNDERWAY		
(a) Very-high-frequency radio additions,, southwest Oregon	February 1961	$4,000
(b) Supervisory control of 230-kilovolt system from Portland	Fiscal year 1961	6,000
(c) Supervisory control of Santiam Substation	March 1961	13,000
(d) Very-high-frequency land radio stations for Tillamook-Toledo area.	October 1960	8,000
(e) Precipitation and temperature recording stations	Fiscal years 1961 and 1962.	17,000
(f) Very-high-frequency radio channel, Franklin-Midway	June 1961	25,000
(g) Dual polarization of radiofrequency paths, Portland-Alvey and Portland-Snohomish circuits.	December 1960	51,000
(h) Hydrologic network reporting facilities	do	6,000
(i) Telemetering facilities	October 1960	7,000
Subtotal, work underway		137,000
NEW WORK		
(j) Emergency microwave power supplies	June 1961	27,000
(k) Telephone switchboard, Longview substation	do	13,000
(l) Supervisory control of Salem substation	April 1962	53,000
(m) Ground water observation network	Fiscal year 1962	34,000
(n) Very-high-frequency radio stations	March 1962	13,000
(o) Other communication facilities	Fiscal year 1961	25,000
Subtotal, new work		165,000
Total, budget item 820		302,000

JUSTIFICATIONS FOR NEW WORK

(j) *Emergency microwave power supplies*

It is proposed to install 25-kilovolt-amperes propane engine-generator sets for microwave emergency power supplies at the Salem and Oregon City substations.

All of the work is scheduled to be performed in fiscal year 1961. The estimated obligations are $27,000.

These power supplies are necessary to insure reliability to the microwave communications, supervisory control and relaying circuits during power outages of station service. Without these emergency supplies, batteries would be discharged during extended interruptions to such an extent that microwave equipment would become inoperative, and other battery-powered equipment would be jeopardized.

(k) *Telephone switchboard, Longview substation*

It is planned to rebuild the telephone switchboard at Longview substation, increasing the number of terminal positions to minimize the large number of handsets now required for line termination.

The estimated total cost of the project is $13,000. The work will be completed during fiscal year 1961.

This project will bring the Longview switchboard to the standard maintained in other substations of this class. It will eliminate the distraction of the operators from other duties, because of the need to switch local calls and dial long line calls.

(l) *Supervisory control of Salem substation*

This project consists of:

1. Supervisory control of Salem substation from Santiam substation.
2. Digital telemetering of the Salem substation log to Santiam substation.
3. Moving of controlling end of Salem-McMinnville supervisory control system from Salem substation to Santiam substation.

Estimated fiscal year 1961 obligations are $53,000 and are for purchases of the principal equipment.

Salem substation is a class 3 substantion and is adaptable to supervisory control. The installation of supervisory control will reduce the operator manning at this station from 5 to 1.8 man-years. This will result in a net annual savings of $7,000.

(m) *Ground water observation network*

The construction of ground water wells, improvement of existing ground water wells, and installation of recording equipment at selected locations in the Clark Fork and Kootenai River basins are proposed.

Estimated obligations for fiscal year 1961 are $34,000, for planning and for payments to the Geological Survey.

The work covering reconnaissance, construction of wells, rehabilitation of existing wells, and installation of recording equipment will be performed by the U.S. Geological Survey.

The collection of ground water data is required to establish ground water levels versus runoff relationships which will aid the Administration in developing improved forecasts of streamflow available during the fall and winter months for power production at Federal hydroprojects.

(*n*) *Very high frequency radio stations*

Fixed very high frequency radio stations at Langlois, Tillamook, Beaver, Toledo, Burnt Woods and Wren substations are proposed for integration into the western Oregon land mobile very high frequency radio system.

Fiscal year 1961 requirements are $13,000 for design and purchase of radio equipment.

Commercial telephone facilities in these areas are not dependable during emergencies. Since customer personnel will do the majority of switching at Wren and Burnt Woods, a direct voice channel to the dispatcher is required. The new 230-kilovolt substation at Toledo requires very high frequency communication since line interruptions put the carrier out of operation.

(*o*) *Other communication facilities*

During the year communication and control installations are required for emergencies and for efficient operation of the system. They consist of motor generator sets, coaxial cables, additional substation communication equipment, etc. It is not possible to foresee the specific locations for these items.

Tools and equipment (item 830): General plant $786,000

This item covers the tools and equipment used in the operation, maintenance, and construction of the Administration's power system. The total cost for the fiscal year 1961 program amounts to $844,000 from which may be deducted estimated receipts of $58,000 from the sale of replaced equipment, leaving an appropriation requirement of $786,000. Special purpose vehicles, construction and maintenance equipment, and conventional types of motor vehicles used at remote locations are supplied from the Administration-owned fleet. Following is a summary of the Administration's tool and equipment program:

	Total cost	Sales credits	Net requirements
(*a*) Office furniture and equipment	$83,000	$6,000	$77,000
(*b*) Helicopter	56,000	15,000	41,000
(*c*) Transportation equipment	388,000	37,000	351,000
(*d*) Shop equipment	5,000		5,000
(*e*) Laboratory equipment	177,000		177,000
(*f*) Tools and work equipment	68,000		68,000
(*g*) Communications equipment	67,000		67,000
Total	844,000	58,000	786,000

(*a*) Office equipment replacements include typewriters, calculators, adding machines, chairs, filing cabinets, and duplicating machines in the amount of $37,000. The average age of typewriters to be replaced is 17½ years; calculators, 17 years; and adding machines, 15 years. Additional general office equipment such as card and stationery cabinets, electric typewriters, adding machines, printing calculators, and a computyper will cost $40,000.

(*b*) It is proposed to replace a helicopter purchased in 1952. It is the first helicopter acquired by the Administration and will have been in service 9 years in fiscal year 1961. Replacement should be made in the interests of safety and efficiency. The industry recommends replacement in from 4 to 7 years, depending on severity of service.

(*c*) The Bonneville Power Administration's fleet of motor equipment will be held to the 1960 level of 536. It is proposed to replace 93 motor vehicles which represents a fleet turnover of 17.3 percent. The net appropriation requirement of $351,000 is 14.7 percent of the $2,395,000 acquisition cost of presently owned equipment. A significant factor related to increasing cost is higher purchase prices. As an example, sedan deliveries cost 11 percent more in fiscal year 1959

than in fiscal year 1957. Increases in other types of equipment are comparable. The following motor vehicles are to be replaced:

Description	*Number*
Sedan deliveries, 4 by 2	29
Carryalls, 4 by 4	24
Light trucks, ½- by ¾-ton, 4 by 2	11
Light trucks, pickup, 4 by 4	11
Light trucks, flatbeds and panels	1
Light trucks, 1-ton power wagon, 4 by 4	7
Trucks, 1½-ton, 4 by 2	2
Trucks, 2-ton, 4 by 2	1
Line trucks, multiple drive	2
Trucks, flatbed, multiple drive	3
Truck tractors, multiple drive	2
Total	93

The Administration depends on three General Services Administration motor-pool systems, which have been established within its territory, for standard-type motor vehicles headquartered in their designated areas. Special-purpose vehicles, construction and maintenance equipment, and standard-type motor vehicles headquartered at remote locations are supplied from the Administration-owned fleet.

(*d*) Shop equipment is used in the automotive repair and plant service shops at the Ross and Bell substations, and in seven small field shops. The funds requested are for modernization, mechanization, and replacements.

(*e*) Laboratory equipment consists of a wide variety of chemical, mechanical, optical, and electrical instruments and devices used in the testing and maintenance of electrical equipment, analysis of system electrical equipment, evaluation of system methods of operation, and planning system additions.

Additional engineering equipment proposed to be purchased in fiscal year 1961 amounting to $45,000 will be used for photogrammetric work, conductor vibration and radio noise studies, electronics studies, network analyses, and switching transient and lightning arrester monitoring.

Additional operation and maintenance equipment amounting to $23,000 consists of oscillogram scaling instruments, Cincinnati recorders, circuit breaker testers, motor-driven meggers, recording voltmeters, a variable frequency test set, and miscellaneous test instruments.

$53,000 will be required to equip four additional generators of the alternating current network analyzer with automatic swing curve plotting equipment, convert four existing generators to electronic generators, provide for an automatic readout for transient stability studies, and procure operational checking equipment. This additional equipment for automation of the network analyzer will raise the capacity of the board to 27 generators, and make possible power system stability studies of the more complicated system of 1961. It will also increase the number of studies that may be performed on the analyzer.

Modernization and mechanization requirements of $26,000 include modernization of the insulation of the surge generator and improvement of Cincinnati recorders on short-stroke circuit breakers.

$30,000 will be required to replace old, obsolete, or damaged equipment. Much of the older gear is limited in operation and accuracy, which prevents maximum utilization of newer equipment.

(*f*) Additional tools and work equipment are proposed to be purchased in the amount of $15,000. Included are power megaphones for line crews, air compressors and vacuum cleaners for substation maintenance crews, conductor burnishers and micro surveying barographs.

$13,000 is required for modernization of presently owned equipment, and to develop and promote the mechanization program through purchase of newly designed or manufactured items for field proving.

$40,000 is required for replacement of equipment which has been in service from 10 to 15 years. Replacements scheduled in fiscal year 1961 amount to 5.7 percent of the tool and work equipment inventory, and are made on an individual basis after considering such factors as obsolescence, repair costs, and service life.

(*g*) Portable electronic maintenance instruments amounting to $25,000 are scheduled to be purchased in fiscal year 1961. These instruments are required to equip communication maintenance district headquarters and isolated radio stations with standard instruments required by new types of installed communication

and control equipment, and to replace wornout instruments necessary in the maintenance of older equipment remaining in service.

Twenty mobile radio equipment sets costing $38,000 are essential to provide communications to maintenance crews in transit and at isolated locations where no other communication facilities are available. The additions of supervisory control has unmanned numerous stations and eliminated the former practice of leaving telephone messages with station operators. Emergency crews and maintenance trucks in isolated areas operate in all kinds of weather and require radio equipment, not only for the performance of duty but also for safety.

Portable radio equipment for areas inaccessible for mobile radio equipment, and equipment for special needs arising during the budget year are estimated at $4,000.

Preliminary engineering studies (item 840): $200,000

Preliminary engineering funds are for investigations to provide accurate data for projects under consideration for future construction, and for other preconstruction work where timing is critical. Examples are—

(1) Reconnaissance, preliminary or partial surveys, and design studies of alternative transmission line routes, substation site locations, radio signal patterns and additions to existing substations.

(2) Cost analyses of the above to determine the most economical combination of facilities in terms of capital and annual costs, integration with existing and proposed facilities, and operating and maintenance requirements.

(3) Investigation, design, and selection of principal material and equipment components preparatory to initiation of specific projects.

SYSTEM ELECTRICAL FACILITIES

Transformer additions (item 871)

Construction in progress	$331,000
New construction	199,000
Total	530,000

Summary.—It is proposed to add transformer capacity in substations of the Administration as listed on the accompanying tabulations. Scheduled energization dates are as shown.

Fund Requirements. For work in progress $331,000 is required in 1961 for completion of design, purchase of minor materials, and construction.

For new work $199,000 is required in 1961 for design, purchase of auxiliary equipment, and for installation costs at Wren and Ione substations. Transformers will be available from the system for Bremerton, Wren, and Ione substations.

Justification.—The transformer capacity additions listed in the tables following are needed on the dates indicated to keep pace with load growth.

The tables indicate for each addition, the transformer voltages, present and proposed nominal ratings, the energization date, and the fiscal year 1961 fund requirements. Where other facility changes of minor nature are scheduled to accompany the transformer capacity addition, these are indicated in the footnotes. The table also shows for each item the load-carrying capacity of the present transformer installation, which can be compared with the estimated load to be carried by the equipment in the future. The capacity cited represents the forced-cooled rating less 10 percent at 95 percent power factor. Thus, the Administration is scheduling transformer changes when the load comes within 10 percent of the forced-cooled capacity. This provides a safety factor for unanticipated load increases

Transformer additions in progress

Substations	Customers	Transformer voltages	Nominal transformer rating		Energization date	1961 requirements	Present transformer capacity [1]	Estimated winter loads		
			Present	Proposed				1960–61	1961–62	1964–65
SEATTLE AREA		*Kilovolts*	*Kilovolt-amperes*	*Kilovolt-amperes*				*Kilowatts*	*Kilowatts*	*Kilowatts*
(a) Aberdeen	Grays Harbor Public Utility District 2.	115–23.0	60,000	60,000						
(b) Chehalis	Lewis County, Public Utility District.	115–69.0		[4] 30,000	October 1960		68,400	[3] 73,000	[3] 77,000	[3] 89,600
		115–69.0	27,000	[5] 27,000						
		230–69.0		[6] 75,000	August 1960	$76,000	30,000			
PORTLAND AREA						80,000		36,700	39,300	48,000
(c) Mapleton	Central Lincoln	115–12.5	6,000	12,000	August 1961	127,000	7,780	7,400	7,900	9,200
(d) Mill Plain	Clark County, Public Utility District.	115–12.5	24,000	[7] 42,000	July 1960	11,000	27,360	41,000	45,600	62,100
(e) Port Orford	Coos-Curry Electrical Cooperative.	115–12.5	3,000	6,000	September 1960	29,000	3,850	4,600	5,000	6,200
SPOKANE AREA										
(f) Highlands	Benton County, Public Utility District.[2]	115–12.5	12,000	[8] 24,000	October 1962	8,000	[9] 18,100	15,600	18,000	24,900
Total, transformer additions in progress						331,000				

[1] For planning purposes, transformer capacity is assumed as 90 percent of the forced-cooling rating at 95 percent power factor.

[2] Feeder position is added for this customer.

[3] Sum of loads served at 23 kilovolts and at 69 kilovolts, including 16,800 kilowatts of steam-generation replacement power and loads now served by existing 115 23-kilovolt transformation at Cosmopolis substation. The district desires to terminate the delivery of 23-kilovolt power at Cosmopolis when 69-kilovolt power is made available at Aberdeen pending the negotiation of a satisfactory termination agreement.

[4] Customer will take service at both 23 and 69 kilovolts. Forced cooled capacity 50,000 kilovolt-amperes.

[5] To be used for 69 115-kilovolt transformation after August 1960.

[6] Presently installed 230 115-kilovolt transformer to be reconnected for 230 69-kilovolt operation.

[7] Forced-cooled capacity 66,000 kilovolt-amperes.

[8] Forced-cooled capacity 40,000 kilovolt-amperes.

[9] Capacity will be 18,100 kilowatts after addition of cooling fans, scheduled for October 1960.

New transformer additions

Substations	Customers	Transformer voltages	Nominal transformer rating		Energization date	1961 requirements	Present transformer capacity [1]	Estimated winter loads		
			Present	Proposed				1961–62	1962–63	1965–66
SEATTLE AREA		*Kilovolts*	*Kilovolt-amperes*	*Kilovolt-amperes*			*Kilowatts*	*Kilowatts*	*Kilowatts*	*Kilowatts*
(*g*) Bremerton	Puget Sound Naval Shipyard	115–11.5	[2] 27,000	39,000	October 1961	$37,000	27,680	29,000	31,000	[3] 35,000
PORTLAND AREA										
(*h*) Wren	Consumers Power, Inc.[4]	115–69	[5]	7,500	September 1961	109,000		1,900	3,000	3,600
SPOKANE AREA										
(*i*) Ione	Columbia Basin Electric Cooperative	69–12.5	1,500	2,500	June 1961	53,000	1,500	1,530	1,580	1,715
Total, new transformer additions						199,000				

[1] For planning purposes, transformer capacity is assumed as 90 percent of the forced-cooled rating at 95 percent power factor.

[2] Present 115–11.5-kilovolts transformation serving the Puget Sound Naval Shipyard consists of a 15,000-kilovolt-amperes transformer owned by the Navy and a 12,000/16,000-kilovolt-amperes transformer owned by the Administration.

[3] The Bremerton substation loads include 19,500 kilowatts of steam generation replacement power.

[4] Feeder position is added for this customer.

[5] Present service to Consumers Power, Inc. at Wren substation is from a 3,000-kilovolt-amperes, 115–12.5-kilovolts transformer. The proposed 115–69-kilovolts transformer will be in addition to this, and will serve the Co-op's loads in outlying areas which are presently served at 12.5 kilovolts.

Circuit breaker replacements (item 880)

Construction in progress	$90,000
New construction	826,000
Total	916,000

Summary.—Work will be in progress in fiscal year 1961 on the replacement of one 115-kilovolt and five 230-kilovolt circuit breakers. New work proposed in 1961 consists of the replacement of eight and the rebuilding of four 230-kilovolt circuit breakers. The work is scheduled to be completed during the period from June 1961 to May 1962.

Fund requirements.—For work in progress, $90,000 will be required in fiscal year 1961 for installation of the Covington and Midway breakers.

For new work, $826,000 will be required in fiscal year 1961 for purchase of material for rebuilding the Columbia breakers, installation of the Columbia breakers, and purchase of the Midway and Ross breakers.

Justification (new construction).—Because of the connection of the Priest Rapids and Rocky Reach generating plants to the Administration's system, and other system additions, the interrupting duties on twelve 230-kilovolt circuit breakers at Administration-owned substations will exceed the ratings of the circuit breakers. Equipment of higher ratings is, therefore, necessary. Four of the circuit breakers can be rebuilt to provide the required rating. Eight breakers will be replaced with equipment of larger ratings. The replaced breakers will be used elsewhere on the system where duties are within their capabilities. The following table compares the breaker ratings with duties and shows the scheduled completion dates.

Substation	Number of breakers	Type of work	Voltage	Interrupting rating		Interrupting duty, ground fault	Scheduled completion	1961 requirements
				Present	Proposed			
CONSTRUCTION IN PROGRESS			*Kilovolts*	*Kilovolt-amperes*	*Kilovolt-amperes*	*Kilovolt-amperes*		
(a) Covington	1	Replacement	115	1,500,000	3,500,000	2,325,000	August 1961	$14,000
(b) Midway	5	....do	230	7,500,000	15,000,000	10,230,000	....do	76,000
Subtotal, construction in progress								90,000
NEW CONSTRUCTION								
(c) Columbia	4	Rebuilding	230	3,330,000	7,500,000	4,180,000	June 1961	237,000
Do	1	Replacement	230	3,330,000	7,500,000	4,180,000	....do	
(d) Midway	4	....do	230	7,500,000	15,000,000	10,230,000	May 1962	363,000
(e) Ross	3	....do	230	3,500,000	7,500,000	5,028,000	January 1962	226,000
Subtotal, new construction								826,000
Total, budget item 880								916,000

Bonneville Power Administration

Operation and maintenance

Appropriation Act, 1960		$9,993,750
Adjustment for wage increase		195,000
Adjusted Appropriation 1960		10,188,750
Increases:		
System operation and maintenance	+707,250	
Power contracts and rates	+2,000	
General administration	+77,000	+786,250
Budget estimate, 1961		10,975,000

Analysis by activities

Activities	Amount available 1960	Decreases	Base 1961	Estimate 1961	Increases
1. System operation and maintenance	$8,962,750		$8,962,750	$9,670,000	$707,250
2. Power contracts and rates	323,000		323,000	325,000	2,000
3. General administration	903,000		903,000	980,000	77,000
Total	10,188,750		10,188,750	10,975,000	786,250

OPERATION AND MAINTENANCE $10,975,000

The fiscal year 1961 program of the Bonneville Power Administration for operation and maintenance of the transmission system, power contracts, rates, and related general administration activities totals $10.975,000. The program provides for reliable operation, maintenance in accordance with good utility practice, commercial relations with customers, and effective management. Tables on pages BP78, BP79, and BP80 show a summary of the operation and maintenance program requirements and statistics illustrating some of the factors which contribute to the increases.

Basically, increases in operation and maintenance result from the addition of new transmission facilities and the aging of existing transmission facilities. New lines and substations and additions to existing lines and substations are necessary to transmit to delivery centers the added power coming into the Pacific Northwest from new Federal generation and, under wheeling arrangements, from new non-Federal generating plants. Moreover, as existing facilities reach certain age levels, major maintenance is required to extend their service lives.

Operation and maintenance program summary

	1960		1961		Requested increases, 1960 to 1961		
	Estimate	Percent of total	Request	Percent of total	Amount of increase	Percent increase	Distribution of total increase
1. System operation and maintenance	$8,962,750	88.0	$9,670,000	88.1	$707,250	7.9	90.0
(a) System operations	3,088,000	30.3	3,155,000	28.7	67,000	2.2	8.6
(b) System maintenance	4,769,000	46.8	5,250,000	47.8	481,000	10.1	61.2
(c) Power resources and requirements	294,000	2.9	303,000	2.8	9,000	3.1	1.1
(d) General services and supervision	811,750	8.0	962,000	8.8	150,250	18.5	19.1
2. Power contracts and rates	323,000	3.1	325,000	3.0	2,000	.6	.2
3. General administration	903,000	8.9	980,000	8.9	77,000	8.5	9.8
(a) Administration	198,000	1.9	213,000	1.9	15,000	7.6	1.9
(b) Personnel	110,000	1.1	110,000	1.0			
(c) Administrative services	272,000	2.7	288,000	2.6	16,000	5.9	2.0
(d) Fiscal services	223,000	2.2	245,000	2.3	22,000	9.9	2.8
(e) Budget and management	59,000	.6	65,000	.6	6,000	10.2	.8
(f) General services	41,000	.4	59,000	.5	18,000	43.9	2.3
Total	10,188,750	100.0	10,975,000	100.0	786,250	7.7	100.0

Operating statistics

	Fiscal year			Percent increase, 1960 to 1961
	1959	1960	1961	
Substations [1]	186	193	200	3.6
Transformer capacity (kilovolt-amperes) [1]	13,033,000	14,005,000	14,450,000	3.2
Transmission lines (structure miles) [1]	7,208	7,462	7,542	1.1
Transmission plant in service (BPA only) [2]	$431,300,000	$449,000,000	$470,000,000	4.7
Points of delivery [1]	349	360	372	3.3
Energy sales (millions of kilowatt-hours	28,700	[3] 30,700	[3] 31,900	3.9
Revenues (BPA only)	$67,973,686	[3] $74,500,000	[3] $78,900,000	5.9
Federal generating plants in operation [1]	12	13	13	
Federal generating capacity (peaking kilowatts) [1]	6,104,900	6,548,600	6,907,400	5.5
Firm wheeling for non-Federal projects (kilowatts) [1]	312,000	382,200	839,100	119.5

[1] Beginning of year.
[2] Average over year.
[3] Average water year.

Maintenance statistics

NUMBER OF MAINTENANCE SERVICES SCHEDULED [1]

	1959	1960	1961	Percent increase, 1960 to 1961
System maintenance program	$4,468,208	$4,769,000	$5,250,000	10.1
Wood poles, above-ground treatment	2,481		5,435	
Danger trees, removal	2,072	1,855	2,570	38.5
Insulator strings, replacement	1,330	1,460	1,750	19.9
Brush on rights-of-way, acres controlled	6,105	6,000	7,270	21.2
Access roads, miles	368	415	500	20.5
Power circuit breakers, complete service	459	435	464	6.7
Power transformers, complete service			3	
Synchronous condensers, complete service		2	4	100.0
Static capacitors, outdoor, complete service	19,194	19,194	28,512	48.5
Disconnect switches, complete service	847	737	887	20.4
Meters	2,355	3,002	3,289	9.6
Relays	1,856	2,196	2,267	3.2
Radio sets	1,623	1,970	2,175	10.4
Carrier relay, supervisory control, telemetering units and fault locator sets	835	960	979	2.0
Microwave units	6,714	7,607	7,607	

[1] Number of equipment units maintained multiplied by frequency of maintenance.

1. System operation and maintenance, $9,670,000

Subactivity	Amount available 1960	Decreases	Base 1961	Estimate 1961	Increases
(a) System operation	$3,088,000		$3,088,000	$3,155,000	$67,000
(b) System maintenance	4,769,000		4,769,000	5,250,000	481,000
(c) Power resources and requirements	294,000		294,000	303,000	9,000
(d) General services and supervision	811,750		811,750	962,000	150,250
Total	8,962,750		8,962,750	9,670,000	707,250

(a) *System operation $3,155,000*

Summary and fund requirements.—$3,155,000 is requested in fiscal year 1961 for the operation of the transmission system, an increase of $67,000 over fiscal year 1960. This increase is related to the expansion of the transmission system, and to the scheduling and dispatching of additional Federal electrical energy and additional non-Federal energy which the Administration has contracted to wheel.

	1960	1961	Change
Substation operation	$2,260,000	$2,268,000	+$8,000
Power scheduling	165,000	182,000	+17,000
Power dispatching	239,000	259,000	+20,000
Operational studies	102,000	112,000	+10,000
Leased power facilities	176,000	179,000	+3,000
Leased communication facilities	82,000	94,000	+12,000
Supervision	64,000	61,000	−3,000
Total, system operation	3,088,000	3,155,000	+67,000

Activities.—Substation operation consists of switching and control of circuits, inspection of transformers, synchronous condensers, oil circuit breakers and voltage regulators, reading of meters, and changing of transformer taps. The quality of electric service is maintained at a level generally expected of utilities.

Power scheduling and dispatching involve the scheduling and dispatching of the transmission of power from Federal generating plants to points of delivery at load centers, the scheduling of energy deliveries for sales and interchanges with connected utilities, the determining and ordering of the amounts to be generated, the ordering of the storage of water and its release, the controlling of the loading of the transmission system, and the coordinating of the outages of generators, transmission lines, and substation equipment for periodic maintenance. Operational

studies involve analysis of voltages, power and reactive flows, system protection and application of equipment to insure efficient and economical operation.

Power facilities are leased by the Administration in some instances when a customer's load center is not on the Administration's system. Such lease arrangements serve to eliminate the necessity for construction of duplicating facilities by the Administration or to avoid the higher costs which would result from the construction of new facilities by the Administration.

Leased communication facilities permit direct and immediate contact between the Administration's power dispatchers and operating personnel of electrical utilities and generating plants in the region. These communication facilities are essential to the integrated electrical operation of the grid system in the Pacific Northwest.

Justification.—Workload indexes in 1961 compared with prior years are shown on page BP79. The increase in system operation is basically required for power dispatcher training, operational studies and substation custodial and groundskeeping activities.

Staffing changes.—The Administration for several years has been working toward the objective of a more integrated operation of substations and a reduction in operating staff requirements through installation of supervisory control and digital telemetering. Although seven new substations will be added to the system during fiscal year 1960, it will be possible to reassign operating staff to cover these stations without an increase in substation operator positions. An instructor will be added to the substation operation staff to provide short periods of intensive training to substation operators. This training is essential to instruct new operators prior to their assignment in the field, and to give refresher training to existing operators. The power scheduling staff is being increased by one hydraulic engineer because of the increased workload associated with additional generator units to be installed at the Dalles and Priest Rapids powerplants.

Following is a summary of staffing changes in system operations:

	Number of personnel			Change 1960–61
	1959	1960	1961	
Substation operation	266	261	262	+1
Power scheduling	17	18	19	+1
Power dispatching	24	25	25	----------
Operational studies	12	13	13	----------

(*b*) *System maintenance, $5,250,000*

Summary and fund requirements.—$5,250,000 is requested in 1961 for the maintenance of the transmission system, an increase of $481,000 over 1960. The increase is required because of new units of equipment coming on the system, and because other facilities are reaching an age which require major maintenance.

	1960	1961	Increase
Transmission lines	$1,348,000	$1,539,000	$191,000
Substations	1,308,000	1,479,000	171,000
Meters and relays	747,000	769,000	22,000
Communications	860,000	926,000	66,000
Buildings, grounds, and other maintenance services	344,000	374,000	30,000
Supervision	162,000	163,000	1,000
Total, system maintenance	4,769,000	5,250,000	481,000

Activities and justification

The maintenance statistics table shown on page BP80 provides a measure for comparing the system maintenance workload in fiscal year 1961 with workloads of prior years. An indication of the growth of the system in terms of units of property to be maintained at the beginning of each fiscal year is shown on the following table:

	Number of equipment units on the system at beginning of year			Increase 1960 to 1961
	1959	1960	1961	
Steel-structure lines.....structure miles	3,606	3,675	3,696	21
Wood-pole lines.....do	3,602	3,787	3,846	59
Brush on rights-of-way.....acres	30,690	34,971	39,154	4,183
Access roads.....miles	3,110	3,147	3,267	120
Power circuit breakers	878	915	947	32
Power transformers	527	545	555	10
Synchronous condensers	16	16	16	
Static capacitors, outdoor units	19,128	19,194	28,512	9,318
Disconnect switches	3,383	3,477	3,597	120
Meters	1,356	1,455	1,527	72
Relays	1,406	1,466	1,530	64
Radio sets	347	357	406	49
Carrier relay, supervisory control, telemetering units and fault locators	380	447	531	84
Microwave units	421	425	425	
Emergency generators	164	170	177	7

The maintenance program provides a reliable grade of electric service to customers consistent with accepted practice in the electric utility industry and safeguards the Administration's investment in the transmission system by insuring maximum economic equipment life. This is accomplished by holding to a level of maintenance which will keep to a minimum costly repairs, lengthy interruptions to service and loss of revenue. System maintenance is determined on the basis of specific items of equipment to be serviced in each year under established standards. The Administration's scheduled frequencies of maintenance are generally at longer intervals than those recommended by most manufacturers of equipment and those in use by other utilities.

The three types of maintenance are: (1) preventive maintenance, undertaken with established schedules or frequencies and covering the entire electrical system; (2) emergency maintenance, such as repair of damage due to storms, equipment failures and other causes; and (3) special maintenance, generally nonrecurring, where unusual conditions require special attention.

A detailed summary of the changes in maintenance activities from 1960 to 1961 follows:

Maintenance activities	Preventive maintenance	Emergency maintenance	Special maintenance	Total increase
Transmission lines	$202,600		−$11,600	$191,000
Substations	141,500	$8,900	20,600	171,000
Meters and relays	22,000			22,000
Communications	69,900	[1]	−3,900	66,000
Buildings, grounds and other maintenance services	25,000	5,000		30,000

[1] Emergency communications maintenance cannot be separated accurately from preventive maintenance.

Transmission lines.—The increase in maintenance of transmission lines is caused primarily by the need to schedule the preservative treatment of 5,435 wood poles in order to extend their useful lives. Also contributing to the increase is the continuing growth of system facilities, the scheduling of a stepped-up insulator replacement program to reduce a growing backlog in this work, and the removal of danger trees. On older lines, trees along the edges of the rights-of-way have grown to such heights that they could fall into the lines during storms. Removal of such trees is programed. In addition, there is planned a detailed survey of the danger tree rights in the Administration's easements in order to provide an orderly control of the enlarging danger tree problem.

Substations.—The increase in substation maintenance is due to growth in facilities, increased age of existing facilities, and the fluctuating nature of certain parts of the preventive maintenance program. Of the $171,000 increase in the

substation maintenance activity, $141,500 is in the preventive maintenance portion which consists of:

Growth in facilities	$57,100
Synchronous condensers (complete service)	32,700
Disconnect switches	4,400
Insulation diagnostic testing	20,300
Electric equipment painting	27,000
Total increase, preventive maintenance	141,500

Complete service is scheduled on four synchronous condensers in 1961 in contrast to two in 1960. Regular diagnostic tests of insulation will be initiated in 1961 on older bushings and transformers with the objective of spotting and correcting weaknesses and extending the useful life of this equipment for perhaps another 15 to 25 years. The increase in the electrical equipment painting program is necessary to reduce the existing backlog in this work.

Meters and relays.—The increase is for spare parts for new types of meters and relays, and for maintaining new equipment coming on the system before fiscal year 1961.

Communications.—Continuing studies of electronic tube performance for microwave indicate that the service lives of these expensive tubes can be extended. Prior to fiscal year 1960, replacement electronic microwave tubes had been purchased on the basis of the expected lives of those tubes already in service. Cumulative operating experience to date indicate that, by adjusting the filament voltage as the tubes age, longer tube life can be achieved. It is thus possible to fulfill fiscal year 1960 requirements by drawing down the stock of spare tubes on hand. The increase in the communications maintenance estimate in 1961 primary results from the resumption of the purchase of electronic tubes for microwave, and the need to maintain new communication facilities being brought into service on the system.

Buildings, grounds and other maintenance services.—Property maintenance includes exterior and interior painting and waterproofing of frame and masonry buildings; and maintenance of plumbing, sanitary systems, overhead cranes, deepwell pumps, other mechanical devices, substation entrance roads, culverts and bridges.

Buildings in service at beginning of fiscal year 1961:	
Control houses	209
Oil houses	27
Untanking towers	6
Warehouses	5
Maintenance and shops	41
Radio and microwave	68
Other buildings	221
Total, buildings	577
Original cost of buildings	$10,800,000

Other maintenance services are provided by the technical laboratory and the engineering staff. The technical laboratory diagnoses and evaluates the quality and serviceability of insulation materials and devices used in the electrical equipment; measures the characteristics and condition of substation ground mats; analyzes and treats cooling water and domestic water; provides, repairs, calibrates and standardizes portable test instruments used to maintain the system; and provides technical advice regarding characteristics, suitability and application of materials used on the system.

Buildings and grounds maintenance is being carried forward in 1961 at the same level as in 1960. Other maintenance services are increased in order to provide laboratory inspection and repair of an increased amount of retired electrical equipment. This equipment is thus made suitable for reuse on the system.

Staffing changes.—The increase in maintenance work will be largely absorbed by (1) greater use of basic utility crews on maintenance work and less on force account construction activities and (2) by hiring temporary employees for seasonal peaks. Following is a summary of staff changes:

	Number of personnel			Increase, 1960 to 1961
	1959	1960	1961	
Transmission line maintenance	127	127	129	2
Substation maintenance	128	132	134	2
Meter and relay maintenance	84	85	85	----------
Communications maintenance	81	84	84	----------
Custodial and caretaking, Ross substation	16	16	16	----------

Part-time clerical positions will be added at Hot Springs, Mont., and Grand Coulee, Wash., to relieve transmission line maintenance foremen of paperwork which has encroached on their time of directing their crews. A substation electrician position will be added at Wenatchee, Wash., because of increased workload in that district. A clerical position will be added to provide clerical assistance to the foreman of the Ross substation maintenance district.

(c) Power resources and requirements, $303,000

Summary and fund requirements.—$303,000 is required in 1961 for this activity. This compares with $294,000 in 1960. The increase of $9,000 over 1960 is due largely to the growth of the system and area generation resources.

Activities.—Power resources and requirements activities are primarily devoted to weekly, seasonal and long-range power requirements studies of the region and studies for similar periods of the Federal system, coordinated power operation studies with non-Federal projects, determination of classes of energy available, generation planning, and development of hydrometeorologic and streamflow forecasting techniques.

Justification.—With the growth of the Federal and non-Federal power systems, the complex coordination of these systems, and new distributions of power to load centers it is impossible to operate and plan for future operations without additional basic resource and load data and analyses. Proposed project developments require joint studies by Federal and non-Federal groups, comments on Federal Power Commission permits and licenses, and investigation of the impact on Federal markets. Personnel analyzing water and power resources participate actively in continuing interagency and interutility committees. The increase in workload requires expanded use of electronic computer equipment to provide basic hydrologic data for streamflow forecasts.

Staffing changes.—An additional engineering position is required in 1961 to perform additional system operation analyses caused by the construction of new large non-Federal hydroelectric projects between existing Federal projects on the Columbia River and its tributaries.

(d) General services and supervision, $962,000

Summary, fund requirements and activities.—$962,000 is required in 1961, an increase of $150,250 over 1960. Activity components and comparison of dollar amounts are shown in the following table:

	1960	1961	Increase
Area management and engineering services	$325,750	$365,000	$39,250
System engineering and technical analyses	295,000	341,000	46,000
Safety and civil defense	50,000	53,000	3,000
Direction of operation and maintenance	55,000	56,000	1,000
Social security, engineer training, life and health insurance	86,000	147,000	61,000
Total, general services and supervision	811,750	962,000	150,250

Justification.—The increase in the estimate for general services and supervision results from the allocation of a higher proportion of the costs of the staff performing this activity to the operation and maintenance program, with a corresponding decrease in the allocation to construction, more use of high-speed digital computer work for system planning and system analyses and the direction of increased effort toward solving technical system maintenance problems. The $51,000 of the increase is required to cover the cost to the Government resulting from the Federal Employee Health Benefits Act. A small amount is included in this activity to cover incremental costs of materials and shop work incident to civil defense activities of the Administration.

Staffing changes.—No increase in staffing is planned for this activity in 1961.

2. Power contracts and rates, $325,000

Summary and fund requirements.—$325,000 is required in 1961 for this activity, an increase of $2,000 over 1960.

Activities.—Power contract and rate activities consist of the negotiation and administration of power sales, exchange, wheeling, and other types of contracts; the planning, coordination, and review of plans for electrical facilities to serve customers; computation of bills for wholesale power, wheeling, and other accounts; the preparation of official reports required by the Federal Power Commission and others on generation, sales, and other data relative to deliveries and transmission of power; and studies of the Administration's wholesale power rates and revenues.

Justification.—Power contract and rate activities in 1961 are compared with prior years in the following table:

	1959	1960	1961	Increase 1961 over 1960
Service plans	32	41	51	10
Power contracts (new actions)	87	96	104	8
Power bills (number)	1,440	1,465	1,474	9
Revenues (BPA only)	$67,973,686	$74,500,000	$78,900,000	$4,400,000
Energy sales (millions of kilowatt-hours)	28,700	30,700	31,900	1,200

Staffing changes.—No change in staffing is contemplated in 1961 for this activity.

3. General administration, $980,000

Activities	Amount available 1960	Decrease	Base 1961	Estimate 1961	Increase
(a) Administration	$198,000		$198,000	$213,000	$15,000
(b) Personnel	110,000		110,000	110,000	
(c) Administrative services	272,000		272,000	288,000	16,000
(d) Fiscal services	223,000		223,000	245,000	22,000
(e) Budget and management	59,000		59,000	65,000	6,000
(f) General services	41,000		41,000	59,000	18,000
Total	903,000		903,000	980,000	77,000

Summary and fund requirements.—$980,000 is requested in 1961 for general administration, an increase of $77,000 over 1960. The increase is needed primarily for the increased allocation of the costs of the staff performing this activity to operation and maintenance functions with a corresponding decrease in costs to construction.

Activities.—Activities included in general administration are executive direction and policy formulation; fiscal, administrative, and personnel management; office services, reproduction services, mail and records, library operations, drafting and graphics, budget and management, supply supervision, procurement services, and management training.

Justification.—Since the Administration is engaged in both a construction program and an operation and maintenance program, general administrative costs are allocable to both programs in proportion to the administrative functions necessary in accomplishing them. As new facilities are brought into service and the system continues to age, the operation and maintenance program increases in size and importance. The growth of this program requires an increasing allocation of general administrative costs to operation and maintenance and a corresponding decrease in the allocation to construction. The increase in this activity in 1961 is basically the result of this shift in allocation of general administration costs.

Staffing changes.—No increase in personnel will be required for this activity in 1961.

BONNEVILLE POWER ADMINISTRATION

Continuing fund for emergency expenses

Appropriated, 1960	----------
Estimate, 1961	----------

JUSTIFICATION

A continuing fund of $500,000, maintained from power receipts, is used to defray expenses incurred under emergency conditions and to insure continuous operation of the Bonneville Power Administration transmission system.

No use of the continuing fund is forecasted. Work under this fund cannot be scheduled in advance of actual requirements because of its emergency character.

Construction of electric transmission lines and substations, contributions

Receipts from contributions for construction, 1960	$319,450
Receipts from contributions for construction, 1961	
Decrease	319,450

JUSTIFICATION

Since 1948, the Bonneville Power Administration has received from its customers funds to provide facilities which are not provided by the Administration under its customer service policy and for facilities needed immediately for which funds were not currently appropriated. Also, non-Federal groups advance funds for relocating facilities of the Administration as required for highway construction and other purposes.

Trust funds on deposit June 30, 1959

Customer	Facilities	Amount
Big Bend Electric Cooperative	Changes at Scootenay substation	$5,400
Chelan County Public Utility District	Relocation of transmission facilities near the district's Rocky Reach plant.	284,300
Clark County Public Utility District	Construction of 69-kilovolt line terminal at J. D. Ross substation.	12,500
Great Northern Railway Co	Relocation of facilities to accommodate railroad construction.	77,400
Idaho Power Co	Installations of facilities at LaGrande substation	7,500
State of Idaho, Department of Highways	Relocation of facilities to accommodate highway construction.	23,700
Oregon State Highway Commission	do	71,975
Pacific Telephone & Telegraph Co	Improvement of Roosevelt microwave radio station access road.	2,000
Pacific Power & Light Co	Construction of terminal at Midway substation	102,000
Do	Construction of 230-kilovolt line position with oil circuit breaker at Troutdale.	107,000
Do	Connection of 230-kilovolt tapline on Ross-Longview line.	97,400
Do	Relocation of a portion of Moxee-Union Gap 115-kilovolt transmission line.	4,500
Portland General Electric Co	Construction of tap facilities for the Bethel substation.	32,000
Do	Construction of 115-kilovolt bus position at Oregon City substation.	76,000
Washington Water Power Co	Relocation of Spokane-Hot Springs line	73,201
Do	Removal of facilities from Cabinet Gorge switching station.	15,400
Washington State Highway Commission.	Relocation of facilities to accommodate highway construction.	203,404
Total, trust funds on deposit June 30, 1959.		1,195,680

Estimated trust fund deposits, fiscal year 1960

Customer	Facilities	Amount
City of Forest Grove	Construction of Forest Grove substation	$10,000
City of Oakridge	Relocation of portion of Oakridge-Lookout Point line for airport construction.	53,800
Oregon State Highway Commission	Relocation of facilities to accommodate highway construction.	40,000
Pacific Power & Light Co	Construction of 34.5-kv. terminal at Kalispell	28,750
Reynolds Metals Co	Installation of 13.8-kv. reactors at Longview substation.	15,000
Washington State Highway Commission.	Relocation of facilities to accommodate highway construction.	164,000
Washington Water Power Co	Inspection and repair of conductor on Spokane-Hot Springs-Noxon transmission line.	3,000
Yakima County	Line changes on Midway-Moxee line for highway construction.	4,900
Total, estimated trust fund deposits, fiscal year 1960		319,450
Total, trust funds		1,515,130

NOTE.—The above trust funds include only those agreements actually negotiated or under current consideration.

GENERAL STATEMENT

Mr. CANNON. Dr. Pearl, we shall be glad to have a statement from you at this time.

(Mr. Pearl's prepared statement follows:)

Mr. Chairman and members of the committee, thank you for this opportunity to appear before you and discuss our budget for 1961. Our construction program is determined by (1) transmission facilities required for generator installations to be placed in service by the Corps of Engineers; (2) transmission capacity for wheeling power for non-Federal utilities in the Pacific Northwest for which contracts have been executed or are under negotiation; and (3) delivery facilities to meet load growth and continue service to our customers. The size and age of the transmission system to be operated and maintained is the basic factor in determining our operation and maintenance budget.

Federal generating plant additions during the 4 fiscal years, 1961 through 1964, will have a peaking capacity of 553,000 kilowatts. This generation, being installed at The Dalles, Hills Creek, Ice Harbor, and Cougar projects, will be transmitted over the Bonneville Power Administration's system.

Facilities in this budget will have capacity to wheel power from non-Federal hydroelectric plants at Priest Rapids, Rocky Reach, Mayfield, Carmen-Trail Bridge, Rock Island, and Wanapum. In the fiscal years 1961 through 1964 peaking capacity additions at these plants which the Administration will wheel total 1,186,000 kilowatts.

In total, 1,739,000 kilowatts of additional peaking capacity, which the administration's system will be required to carry, is scheduled at Federal and non-Federal projects during the 4 fiscal year period covered by our 1961 construction budget estimates. Transmission facilities presented in our 1961 construction budget are scheduled for completion within this 4-year period. Total Federal and wheeled non-Federal generation will reach 9,486,000 kilowatts by July 1964.

Power generation at the Federal John Day Dam is scheduled to begin after the period covered by this budget. Future budgets of the Administration will contain transmission facilities associated with this project.

1961 APPROPRIATION ESTIMATES

Following are 1961 program and appropriation estimates compared with 1960

	1960	1961	Change
Construction:			
New appropriations	$21,450,000	$20,220,000	−$1,230,000
Carryover from prior fiscal year	430,000	422,000	−8,000
Total, construction funds available	21,880,000	20,642,000	−1,238,000
Unobligated balance carried over to succeeding fiscal year	−422,000		+422,000
Total, construction program	21,458,000	20,642,000	−816,000
Operation and maintenance: New appropriations	10,189,000	10,975,000	+786,000
Combined programs	31,647,000	31,617,000	−30,000

CONSTRUCTION

A comparison of the 1960 and 1961 programs by the three main budget categories follows:

Activity	1960	1961	Change
Construction in progress	$12,120,000	$13,341,000	+$1,221,000
New construction	8,707,000	6,515,000	−2,192,000
General plant (tools and equipment)	631,000	786,000	+155,000
Total program	21,458,000	20,642,000	−816,000

The principal new construction item in our 1961 program is for a second 345-kilovolt line from the Chelan Public Utility District's switchyard (at its new Rocky Reach hydroelectric plant now under construction) to the Bonneville Power Administration's Maple Valley substation. This project is needed to transmit power from Federal and non-Federal plants to the Puget Sound area. Other facilities programed for 1961 are related to the schedule of new generation installations. These facilities will provide for reinforcement of customer services, equipment replacements and additions, and improvement in system stability.

OPERATION AND MAINTENANCE

Our budget estimate for operation and maintenance in 1961 is $10,975,000, an increase of $786,000 over 1960. This increase is associated with the operation and maintenance of new facilities and with major maintenance required to extend the service lives of existing facilities. The existing facilities have reached the age where more costly complete replacement will be required unless the major maintenance is performed. Also contributing to the increase are costs of the Federal Employee Health Benefits Act.

A summary of the fiscal year 1961 program by major activities compares with fiscal year 1960 as follows:

Activity	1960	1961	Change
System operation and maintenance	$8,963,000	$9,670,000	+$707,000
Power contracts and rates	323,000	325,000	+2,000
General administration	903,000	980,000	+77,000
Total	[1] 10,189,000	10,975,000	+786,000

[1] Includes proposed supplemental of $195,000 for wage increases for hourly employees.

Mr. PEARL. If it meets with your approval, I would like to use some charts.

Mr. CANNON. We shall be glad to have you use them.

Mr. PEARL. I appreciate this opportunity, Mr. Chairman and members of the committee, to go over our budget. With the use of these charts, I can do it in a rather short period of time.

Our budget is divided into two parts, "Construction" and "Operation and maintenance." The budget is not difficult to explain for the reason that our construction requirements are a function of new generation which is coming in during what we call our budget period; that is, Federal generation and non-Federal generation for which we have firm wheeling contracts. Of course our operation and maintenance budget is a function of the size of the physical plant which we must operate and maintain, and the age of this physical plant.

To give you an idea of what we have by way of power coming in in each one of the years during our 1961 budget period, we have prepared a chart.

POWER GENERATION

You will notice that in 1961 there are 179,400 kilowatts of Federal generation peaking capacity coming in; non-Federal generation, 139,200 kilowatts. That means during this year there are 318,600 kilowatts of new generation coming in to the area for which we must provide facilities to carry the power from the point of generation to the load center.

I shall not read all these figures, just the totals. In 1962 there are 1,084,500 kilowatts; in 1963 there are 82,300 kilowatts. This includes our budget period which ends in 1964, during which year there will be 254,100 kilowatts of new generation.

That gives a general idea of what we must provide facilities for, and our construction budget is based upon these figures.

Comparing our budget request for 1959–60 with our 1961 request, we have prepared a chart which indicates that by way of new appropriations for "Construction" in 1959 we received $20,934,000. In 1960, our present fiscal year, we received $21,450,000. In 1961 we are asking for $20,220,000. That is the request we are making today for our 1961 budget.

OPERATION AND MAINTENANCE

For "Operation and maintenance" in 1959 we received $9,546,000; for the present year, $10,189,000. That includes the $195,000 supplemental which the House has approved. I do not believe the Senate has acted on it yet. In comparison, we are asking for our 1961 budget, $10,975,000.

Of course, the totals appear at the bottom. That is the sum of "Construction" and "Operation and maintenance."

There is one item—I do not know when you would rather have me take up—but it is in connection with a downward revision we can make, which we have submitted to the Bureau of the Budget.

Mr. CANNON. I will ask you, first, where do you save this $6,000 over the previous year?

Mr. PEARL. Where do we save it?

Mr. CANNON. Your budget this year asks for $6,000 less than your budget request last year. Where do you subtract that $6,000 from last year's budget in order to reach this year's budget?

Mr. PEARL. It comes from construction, of course, because our O. & M. goes up every year because our physical plant grows every

year. If this year's budget is less than last year's, it comes from construction.

(Off the record.)

HYDRO INSTALLATIONS IN RUSSIA

Mr. CANNON. As I understand it, Doctor, that Grand Coulee is the largest installation of its kind in the Western Hemisphere.

Mr. PEARL. That is what we frequently say, and I think that statement is accurate.

Mr. CANNON. We are told that Russia now has one which is twice as large under construction. We are also told that Russia now has in operation—and some of the Members of the Congress coming back report having visited it and seen it—one plant which produces over 2 million kilowatts of power. What is our maixmum production here?

Mr. PEARL. We think of Grand Coulee, of course, as 2 million kilowatts. I read the report the Senate committee made. The project they mention there is much larger than 2 million kilowatts.

(Off the record.)

Mr. CANNON. Reports we have of one Russian dam now under construction are that it would produce 4,500,000 kilowatts. That would be more than the combined production of our larger dams in your system, would it not?

Mr. PEARL. In your first statement you said it is larger than the Coulee and Bonneville projects, and that statement is accurate. But, of course, we now have in the Northwest Federal projects with an installed capacity of approximately 5.7 million kilowatts, for which Bonneville is the marketing agency.

You see, I am counting 12 and part of a 13th when I say that.

Mr. CANNON. There are 12 or 13 installations?

Mr. PEARL. That is right.

Mr. CANNON. This latest one produces 4.5 million kilowatts, which is, of course, the largest in the world.

Mr. PEARL. Yes.

Mr. CANNON. It has the greatest production of any installation in the world. You have no reason to doubt the accuracy of these reports about Russia's progress in the production of hydroelectric power?

Mr. PEARL. No. Of course, I am basing my statement on the Senate report of their trip, on which they actually saw it.

Mr. CANNON. And which they photographed.

Mr. PEARL. That is right.

Mr. JENSEN. Mr. Chairman, may I make a statement at this point?

Mr. CANNON. Mr. Jensen.

Mr. JENSEN. Is it not a fact, however, Doctor, that at the present time we produce in America something like 3½ to 4 times more electric power than is produced back of the Iron Curtain?

Mr. PEARL. That is correct as of today.

Mr. JENSEN. Of course, Mr. Chairman, we have a great combined production of electricity in Federal, private, municipal, REA, and PUD power. Those five different power-producing agencies are capable of producing all the power we can possibly use in America,

irrespective of what Russia might do as a government. Only the Government produces power there, as is the case in England.

Mr. CANNON. According to reports two dams in Russia produce, combined, approximately 7 million kilowatts. One produces in excess of 2 million and the other produces 4½ million. At this rate, how long do you expect the United States to remain in the lead in the production of hydroelectric power?

Mr. PEARL. I think, generally speaking, of course, in the United States we build projects when we need them; in other words, when the load requires more generation. I assume that in Russia maybe they build them independent of the load. Of course their potential load there must be much greater than our potential here, assuming they become as electrified as we are in this country.

Mr. CANNON. You think it is quite possible that in the course of a few years they might exceed us in total production?

Mr. PEARL. It is a potential. I do not know that they will. I think it still is a potential.

NET BILLING

Mr. CANNON. You indicate on page 8 of the justifications that you intend to settle accounts on a net billing basis. Tell us how this net billing basis works and the effect it will have on the 1961 budget, if any.

Mr. PEARL. I would like to ask Mr. Ostrander to answer the question. Is that all right?

Mr. CANNON. Mr. Ostrander.

Mr. OSTRANDER. Mr. Cannon, the net billing arrangement is one that the Congress has already approved for some of the other power administrations.

Mr. TABER. Which ones?

Mr. OSTRANDER. Southeastern Power Administration and the Southwestern Power Administration. It was approved, I think, 2 or 3 years ago.

It is designed to facilitate the contractual arrangements between BPA and its customers where there are transactions back and forth. We render a service, either the sale of power or the transmission of power, let us say, to Washington Water Power Co. in our area. The Washington Water Power Co. may in turn at times be carrying some of our power over its system. So there are transactions both ways. The purpose of this would be to prepare a bill which shows the net result of the two transactions, and thus ultimately reduce somewhat the amount of our appropriation request. I do not think it will affect 1961.

Mr. CANNON. While there might be some months in which the balance would be against you, you expect the balance for the year to be in your favor?

Mr. OSTRANDER. We expect it to be very much in our favor.

Mr. CANNON. The advantage of this would be that we would retain control of the money through the year?

Mr. OSTRANDER. That is right.

Mr. CANNON. That system has already been in effect in both the southwestern and southeastern areas.

Mr. OSTRANDER. Yes, sir.

Mr. CANNON. We instructed the Reclamation Service to adopt a similar system at our meeting last week. So apparently all of our Government agencies are coming to this system.

Mr. OSTRANDER. Yes, sir.

Mr. CANNON. To what extent would that affect your 1961 budget?

Mr. OSTRANDER. I believe it would not make any difference in our 1961 budget. Looking a little further ahead when we get into the wheeling of power from some of these non-Federal dams, it is a very difficult thing to forecast, because you never know just how the operation will go, but when it operates it would be in the direction of reducing the appropriations otherwise required.

REVENUES AND POWER RATES

Mr. CANNON. On page 11 of your justifications you discuss deficits in fiscal years 1960 and 1961, in spite of increases in gross revenues. I wish you would bring us up to date on the prospects for higher power rates, which seem to be indicated by these deficits. In your opinion, do these deficits indicate unmistakably the necessity for increased revenues?

Mr. PEARL. At this particular time, of course it is a little difficult to answer that too definitely. In 1958 we had a very warm winter. The aluminum companies curtailed all their interruptible and some of their firm power, and our revenue went down as a result of that. So instead of having our normal increase that we expected, we had just a very small increase over the previous year by way of revenue.

In 1959, again we had a similar condition. In other words, we had a warm winter, and our interruptible load did not come back on the line as we had anticipated. So again in 1959 we show a deficit.

This is an annual deficit. I think you are familiar with the fact that we are some $64 million ahead of our payout requirements. So this is an annual condition. The question is what is going to happen this year and next year. Already we are aware of the fact that our receipts in this year will not be as much as we had anticipated, because again our interruptible loads have not returned and some of the firm loads, for that matter, have not been reinstated.

This year our temperatures have been more nearly normal. We have not had a warm winter, so our loads have increased. One of our big sources of revenue is this secondary or interruptible power.

Mr. CANNON. How does the temperature of the season affect your demands?

Mr. PEARL. The thing which affects our load is the demand for space heating, the heating of homes.

Mr. CANNON. Formerly, in the average community, winter resulted in increased demand for power for heating purposes, but now, due to the introduction almost universally of air conditioning, there is a greater demand for power through the hot months than there is during the cold months. Would not that situation apply with you?

Mr. PEARL. That is a condition in other places, but not in our area. In our area, air conditioning has not come in to any great extent.

Mr. CANNON. Do you expect it to develop in the future as it has in other parts of the country?

Mr. PEARL. It will develop, but I do not think it will ever equal Washington, or Chicago or New York. I do not think it will ever on a percentage basis even approach those, because our weathermen tell us our average summer temperature is 74 degrees.

Mr. CANNON. You do not have the extremely hot weather in this area that we have in other sections of the country.

Mr. PEARL. No, we do not, and if we do have it, it is a matter of only a few days instead of months.

Mr. CANNON. Nor do you have the extreme cold in that area that you have in other sections of the country.

Mr. PEARL. That is correct.

Mr. CANNON. It seems to me it ought to balance eventually.

Mr. TABER. Is it not a fact that up in that mountain region the cold weather is quite acute?

Mr. PEARL. Yes. The mountain area, of course, has a very low percent of the population.

Mr. CANNON. You are looking toward increasing your rates in order to make up the deficit. Do you foresee no situation in which your demand will be sufficient to avoid these deficits so you can deliver service at the old rates?

SALE OF SECONDARY POWER

Mr. PEARL. One factor which will tend to build our summer loads is irrigation. Irrigation is coming in in the West rapidly. I think that one factor will help us with our summer load. But the one item which will help us the most, as far as maintaining our rates, is our sale of secondary power; in other words, if we can market this secondary power, of which we have a large amount.

Mr. CANNON. What is the prospect for a market for your secondary power?

Mr. PEARL. Secondary power, as you know, is power which is a function of the water condition. It is pretty hard to visualize any load which can operate on power which may or may not be available. In other words, it is an as, if, and when basis that they get this power. It can be used to replace steam. Since hydro is cheaper than steam, in some cases you can justify shutting down a steam generating plant and using Bonneville or any secondary power available.

STEAM PLANTS

Mr. ANDERSEN. May I ask Dr. Pearl a question at this point along this line, please?

Mr. CANNON. Mr. Andersen.

Mr. ANDERSEN. Doctor, I am interested in what you have to say about interruptible power and firm power. Of course, you are limited in your entire system in firm power, are you not, as to the contracts you can put out based on the low peak of the year on the system?

Mr. PEARL. That is correct. It is based on the driest year of record.

Mr. ANDERSEN. In any year you can guarantee firm power around the year based on only your low peak of the year in the system. Is that not correct?

Mr. PEARL. Yes, sir.

Mr. ANDERSEN. Assisted, of course, by any steamplant you might have available.

You have a considerable amount of coal in the State of Washington, have you not?

Mr. PEARL. We do have.

Mr. ANDERSEN. We have a lot of coal in the Missouri River Valley, up in the upper end, in the form of lignite, do we not, underlying the whole country?

Mr. PEARL. That is correct.

Mr. ANDERSEN. This applies to the same question I asked last year relative to the Missouri River Valley. Have you come to the point that you are exhausting in the Columbia River Basin virtually the bulk of the new hydro possibilities for firm power?

Mr. PEARL. No, we are not. In other words, as of the time that new hydroprojects produce power at a higher cost than steam, it is inevitable that steam will come into our area, but we have not arrived there yet.

Mr. ANDERSEN. For the good of the economy of both areas, for example, in central Washington where you have that tremendous quantity of coal and where you have a tremendous number of people available for mining coal, have you made a study as to the advisability of encouraging the construction of steamplants operated or fueled by coal rather than to go into new hydroprojects in that area?

Mr. PEARL. As of today, there are still hydroprojects which are so low cost that——

Mr. ANDERSEN. Yes; but, Doctor, at certain times of the year those hydroprojects go down in their peak of firm power, do they not, like the rest of the system?

Mr. PEARL. You mean the hydro?

Mr. ANDERSEN. Yes.

Mr. PEARL. Our firm hydro is a function of water.

Mr. ANDERSEN. What I am talking about is the possibility of firming up your entire system with the proper installation of steamplants scattered at strategic locations.

Mr. PEARL. I think I can say that with water storage it will still be cheaper today. We have a number of places in the Northwest, excellent sites for water storage. Water storage can be used to firm our secondary just the same as steam can be used. I think it is inevitable that there will be more run-of-the-river hydro projects and more water storage projects will go in before steam is economically feasible and will come in. But there again I would say——

Mr. ANDERSEN. Why is it, then, that private utility combinations in and around Seattle and that area are today trying to get leases on coal properties looking ahead to the time when they will possibly construct steamplants to firm up their hydropower? How far off do you consider that time to be? Ten years?

Mr. PEARL. Yes, 10 or 15 years.

Mr. ANDERSEN. But in the meantime, do you think it would be good business to consider doing as they have done down in the TVA, firming up or at least raising the level of the firm power they can guarantee throughout the year by adding a steamplant here and there, and at the same time giving employment to thousands of miners mining coal? I refer also to the Missouri River on the same general question. You are dependent absolutely for the level of your firm power on what your system can produce in hydro at the low peak of the year. Naturally, anything you can add to that firm power takes just that much away from your troubles of selling secondary power, does it not? You have that much less available.

Mr. PEARL. That is right. However, I am a little inclined to think my statement is still accurate: As long as we have this hydro storage available at the present cost, it is a cheaper way to produce firm power than steam.

Mr. ANDERSEN. You have answered the question in my mind, and that is, when you anticipate there will be need for auxiliary powerplants as far as the Columbia River Basin. You say about 10 years from now?

Mr. PEARL. Ten to 15 years from now.

Mr. CANNON. Mr. Rabaut.

Mr. RABAUT. Should your agency be looking ahead as to the acquisition of sites for thermal power?

Mr. PEARL. That is something which perhaps you as Congressmen would be better able to answer than I. Is the policy to be that Bonneville will not put in steam? That has been the policy in the past.

Mr. RABAUT. My question just arises out of this discussion. If private power is doing that, if we are to be dependent upon peak power, should we not take advantage of these other damsites to strengthen the peak power by containing the flow of water?

Mr. PEARL. I want to give you a factual statement of what is really happening in the Northwest. We are working on coordination of Federal and non-Federal power. These people who are out looking for coalbeds and who are thinking of steam generation are also visiting Bonneville with the idea of coordinating with Bonneville. So really their steam will be firming our secondary.

Mr. RABAUT. There would be no necessity, then, for you to be looking for steam?

Mr. PEARL. Not necessarily for the Federal Government.

Mr. RABAUT. If these relations are maintained.

Mr. PEARL. If these relations are worked out and we develop an overall coordination—and we are spending hours working on such a thing. We not only need to coordinate steam with hydro, but to coordinate hydro with hydro because, as somebody said here a minute ago, we have private power, public power, and Federal power. In the category of public power we have the cooperatives, the public utility districts, and the municipalities. We have multiple ownership of generation in the Pacific Northwest——

Mr. JENSEN. Known as the power pool.

Mr. PEARL. Yes, which can and should be coordinated.

(Off the record.)

INCREASED COSTS

Mr. CANNON. You discuss in your justifications deficits in fiscal years 1960 and 1961, in spite of the fact that you have increases in your gross revenue. If you are getting larger revenues, how is it you are disturbed about deficits?

Mr. PEARL. Our costs are going up faster than our revenues are increasing.

Mr. CANNON. Although you are getting larger revenues, your costs are increasing?

Mr. PEARL. That is right. On every new generating project that comes in the cost per kilowatt or kilowatt-hour, on either basis, is higher than it was before. In other words, Grand Coulee and Bonne-

ville, the two original ones, were the two cheap ones. That is where we get our cheap power. Every time another project comes in, it tends to dilute this cheap power. Our answer to your question is that our costs are going up faster than our revenues are increasing.

Mr. CANNON. What is the nature of those costs which are increasing so rapidly? Is it labor or material? What is the cause of it?

Mr. PEARL. In the first place, normally you put in the cheapest site first. Coulee was the cheapest one, then Bonneville, then Chief Joseph. Then as you take less desirable sites, in order for it to cost less per——

Mr. CANNON. Is that due to the terrain, the contour or topography, or to the cost of labor and materials?

Mr. PEARL. It is due to topography. Then labor and materials have gone up. So you have every item going up.

Mr. CANNON. At every new installation there is a corresponding increase in your pool and in the cost of production?

Mr. PEARL. That is right.

Mr. CANNON. As your gross revenues increase and as your market and demand increase, is it possible that in the next 10 years you can keep ahead as you are now? You are now actually ahead.

Mr. PEARL. We are.

Mr. CANNON. Is it possible that with this increased demand which undoubtedly is now in full force all over the country, and especially with the introduction of air conditioning, you will still be able to meet your expenses?

Mr. PEARL. We feel sure that for the next 5 years, which is our rate period, our annual losses will not approach our accumulated surplus. In other words, we think at the end of the 5 years we will still have some surplus.

Mr. CANNON. Then we may not concern ourselves about this matter for 5 years?

Mr. PEARL. That is what our present studies indicate.

CALIFORNIA INTERTIE

Mr. CANNON. Last year we had some discussion concerning a tie-in between the Bonneville system and California. What is the status of that at this time? We get the idea that there is a growing opposition to tying in Bonneville with California. Why should there be opposition? What is the basis of the opposition, and what is the trend there?

Mr. PEARL. We made the study at the request of the Secretary of the Interior, who received this request from the Senate Committee on Interior and Insular Affairs. We submitted that study to the Senate committee last month. Previous to submitting that we called in all of the groups we were to coordinate with—private power, public power, the Governors of the States. We asked each one of them for comment on our report. To sum up and tell you what the opposition is, the largest percent felt, let us say, there was a hazard to our selling power in California because of the preference clause. In other words, Bonneville's proposal was to sell power in excess of the needs of the area. A number of these people in commenting suggested legislation to safeguard the power for the Pacific Northwest. In other words, as of the time we will not have it to sell outside

of the Bonneville market areas, the sales would cease. I think that is the biggest one item they are concerned about, the Bonneville marketing area. Some of them proposed that we have legislation establishing the Bonneville marketing area. It is not now officially designated completely.

Our study indicated that a line from Klamath Falls down to Pit powerplant No. 3, which the Pacific Gas & Electric Co. proposed to put in, was economically feasible and that Bonneville could derive from a million and a half to two million dollars of revenue from power which is now going to the ocean.

Mr. CANNON. If you connect with California, then, you would necessarily have to use P. G. & E.

Mr. PEARL. To be economically feasible. That is what our study indicated.

Mr. CANNON. It might be economically feasible and still not be desirable.

Mr. PEARL. That is true. The desirability is something that I think the Senate should make the decision on. We made the engineering determination.

Mr. CANNON. You could connect with California without P. G. & E.?

Mr. PEARL. We could get a small amount of power to California by wheeling it over COPCO's line which ties with Bonneville and ties with P. G. & E.; about 50,000 kilowatts.

Mr. CANNON. Is that private or public?

Mr. PEARL. That is a private group.

Mr. CANNON. In either event, P. G. & E. and the other companies, both are private utilities?

Mr. PEARL. They are.

Mr. CANNON. Is the opposition from the Bonneville area or from California?

Mr. PEARL. From the Bonneville area.

Mr. CANNON. That opposition seems to be growing?

Mr. PEARL. There is one other statement I would like to add to that. This power we are proposing to sell is interruptible power. It could only be used down there by displacing steam. That is to say, P. G. & E. would shut down steam plants where their power costs are high and use this dump power, and thereby save some oil, and we derive benefit instead of the power going to the ocean.

Mr. CANNON. While you are considering all of these possibilities, why not tie in with the Central Valley system?

Mr. PEARL. There is no gain in firm power by a tie between the Bonneville system and the Central Valley system.

Mr. CANNON. It would all be hydroelectric?

Mr. PEARL. It would all be hydro.

Mr. CANNON. Is it not an advantage to any large hydroelectric installation to have a thermal plant integrated as a part of it to take care of peak loads?

Mr. PEARL. The thermal in the Northwest is owned by the private groups and by the public groups. They do use it for peaking. They keep these units on what they call spinning reserve. But the power costs for energy make it prohibitive with our cheap hydro. In other words, the very lowest, which would be on an incremental basis, would be 6 mills per kilowatt-hour. It runs from there up to 30 mills.

Mr. CANNON. That is for thermal power?

Mr. PEARL. That is for thermal.

Mr. CANNON. What is it for hydroelectric power?

Mr. PEARL. It is 2.2 mills per kilowatt-hour.

Mr. CANNON. Could the Government develop thermal power cheaper?

Mr. PEARL. Do you mean if we had it? You see, we do not have it.

Mr. CANNON. I am saying, if you need it, why not have it?

Mr. PEARL. I see no reason why the Government could not develop power as cheap or cheaper than the private companies, but of course that has not been the policy.

UNOBLIGATED BALANCE

Mr. CANNON. What is your current estimate of the unobligated balance which you will have at the end of this fiscal year, 1960?

Mr. PEARL. The surplus?

Mr. CANNON. Yes, your unobligated balance. You reported, as I recall it, that you had an unobligated balance of $420,000. Has that amount been increased in the meantime?

Mr. PEARL. No.

Mr. CANNON. What is the status of it?

Mr. PEARL. That is the result of transformer savings primarily, because we have elected to allow heavier loadings of our transformers.

Mr. CANNON. Then what is your estimate today of the unobligated balance that you will have at the end of this fiscal year, June 30, 1960?

Mr. PEARL. $422,000 is our present estimate.

Mr. CANNON. By the end of the fiscal year, do you think this $422,000 will increase?

REVISED 1961 REQUEST

Mr. PEARL. There is a possibility. This is a good time for me to tell you that we are now requesting $1½ million less in our request today than appears in your documents.

Mr. CANNON. That is very gratifying.

Mr. PEARL. That comes in the category of additional savings.

Mr. CANNON. How have you been able to effect these savings?

Mr. PEARL. These savings are from a number of sources. One is this transformer item which I mentioned. One is from the use of material that we have in stores. Now that our designs for construction have been completed, we find that by the use of material from our system we will be able in 1961 to save $1,100,000; from these transformer additions, $300,000; and on construction contracts, $100,000—making a total of $1½ million that we are now requesting less than appears in our previous submissions.

Mr. CANNON. That is a very gratifying report. I suppose that will be taken out of construction.

Mr. PEARL. That is correct.

(Off the record.)

Mr. CANNON. Mr. Jensen, you may proceed.

Mr. JENSEN. Doctor, has the Bonneville Power Administration made a request that the Bonneville power rates not be increased for the next 5 years?

Mr. PEARL. For the next 5 years, of which this is year No. 1.

Mr. JENSEN. In face of the fact that you have been losing money, so to speak, during the past several years?

Mr. PEARL. On an annual basis, that is correct.

Mr. JENSEN. Any private business concern, in order to stay in business and keep from going bankrupt, under a situation of this kind would be obliged to raise the price of their goods in order to remain in the black. However, you are taking the position that you are hoping that Bonneville power revenues will be greater in the next 5 years even at the present power rates, and hence you are requesting that the Federal Power Commission not raise the rates. Is that right?

Mr. PEARL. That is right.

Mr. JENSEN. That does not sound like good business to me. What are your power rates?

Mr. CANNON. If you will permit, that is the matter we have just been discussing in detail.

Mr. JENSEN. I want to discuss it a little more in detail.

What are your present power rates?

Mr. PEARL. $17.50 per kilowatt-year is our base rate.

Mr. JENSEN. That is a little more than 2 mills a kilowatt-hour?

Mr. PEARL. Yes. It is almost exactly 2 mills.

Mr. JENSEN. Of course, no one in your area who purchases power from the Bonneville Power Administration, if he knew the whole story, would object at all to having that rate raised, say, half a mill. That would give you 25 percent additional revenue, would it not?

Mr. PEARL. Yes.

Mr. JENSEN. What is your revenue now per year, on the average?

Mr. PEARL. $67 million.

Mr. JENSEN. One-fourth of that would be about $16½ million, would it not?

Mr. PEARL. Yes.

Mr. JENSEN. If you had that $16½ million additional revenue, you would then know for sure that the Bonneville Power Administration books would be operating in the black, would you not?

Mr. PEARL. That is correct.

Mr. JENSEN. That being the fact, I cannot understand why you have not asked that your power rates be increased half a mill. Certainly you would be completely justified in doing so.

It is noted in the General Accounting Office report on the Columbia River power system that there was a net loss of $2,949,501 for fiscal 1958 and $6,609,820 for fiscal 1959. As this was based on the present use of 2½ percent interest charge for Bonneville, the Corps of Engineers, and the Bureau of Reclamation, the actual loss under the present cost of money would be considerably more. What would be the actual loss for fiscal years 1958 and 1959 if an interest charge of 3 percent were used? You can furnish that for the record. What would it be if 4 percent were used? That is about what the American

people are paying right now for money which the Treasury is borrowing.

On the basis of present net investment of more than $1,350 million—that is what we have invested in the Bonneville Power area right now—it appears the loss for fiscal year 1958 would be $9,649,501 at 3 percent and $23,199,000 at 4 percent interest.

If these figures are wrong, I hope you will put your own figures in the record as you calculate them.

For fiscal year 1959, the losses would be $13,359,820 at 3 percent, and $26,859,820 at 4 percent. As I say, if these figures are not true, you put your own figures in the record.

(The information requested follows:)

We are unable to check precisely the figures contained in the foregoing questions on the effect of an assumed 3 and 4 percent rate of interest on the net operating results for fiscal years 1958 to 1961, inclusive. The unpaid balance of the power capital investment, $1,357,716,562, as of June 30, 1959, includes investment in construction work in progress as well as in plant in operation. Interest on the portion representing construction work in progress is capitalized as part of the cost of the plant instead of being charged to interest expense.

The actual interest figures for the past 2 fiscal years are as follows:

	Fiscal year 1958	Fiscal year 1959
Total interest	$32,712,927	$33,217,425
Less interest charged to construction	5,017,358	3,031,256
Interest expense charged to operations	27,695,569	30,186,169

Hence, since allowance must be made for interest during construction, interest expense cannot be computed directly from the total unpaid balance of capital investment as of any date. Moreover, the actual interest computations are made on the changing net unpaid balance throughout a year. This interest base rises as additional funds are invested month by month and has offsets as power revenues are returned to the U.S. Treasury throughout the year.

The simplest way to estimate the effect of a different interest rate is to adjust the actual interest expense in proportion to the change in the interest rate. An increase in the rate from 2½ to 3 percent would be an increase of one-fifth (one-half on 2½). An increase in the rate from 2½ to 4 percent would be an increase of three-fifths (1½ on 2½). On this basis, the adjustments of interest expense and net deficits for fiscal years 1958 to 1961, inclusive, would be as follows:

Line No.	Item	1958	1959	1960	1961
1	Interest on 2½ percent basis	[1] $27,695,569	[1] $30,186,169	[2] $31,622,000	[2] $32,611,000
2	Add 1/5 to increase to 3 percent basis	5,539,114	6,037,234	6,324,400	6,522,200
3	Add 3/5 to increase to 4 percent basis	16,617,341	18,111,701	18,973,200	19,566,600
4	Net deficits on 2½ percent basis	[1] 2,949,501	[1] 6,609,820	[2] 5,551,000	[2] 5,126,000
5	Net deficits on 3 percent basis (line 4 plus line 2)	8,488,615	12,647,054	11,875,400	11,648,200
6	Net deficits on 4 percent basis (line 4 plus line 3)	19,566,842	24,721,521	24,524,200	24,692,600

[1] Actual.
[2] Estimated.

Mr. JENSEN. Have conditions changed since your estimated loss of $5,551,000 for fiscal 1960 and $5,126,000 for fiscal 1961? Do you want to answer that now?

Mr. PEARL. If I can answer it in a general way. Allocations of cost to power are being revised downward, and this will reduce our loss for these 2 years——

Mr. JENSEN. How is that now?

Mr. PEARL. The costs allocated to power at these projects are being revised downward. For example, Grand Coulee is used for flood control. Nothing was allocated to flood control. If part of that cost were allocated to flood control, it would reduce our annual costs and thereby reduce our loss.

Mr. JENSEN. If part of it is charged to flood control, but who knows if part of it will be charged to flood control? Is that a certainty?

Mr. PEARL. No. Of course that is true. We do not know, of course, about interest rates. The Department and the Federal Power Commission make this determination——

Mr. JENSEN. At your request.

Mr. PEARL. They have indicated 2½ percent is what we should use in our study.

Mr. JENSEN. Would not the losses increase by $7 million for fiscal 1960 and the same for 1961 if a 3 percent interest rate were charged? The answer, of course, is "Yes." And would not the losses be increased by around $21 million for each of these years at a 4 percent interest charge? And of course the answer is "Yes." There could be no other answer.

This year you are asking us to appropriate $32,718,000, less $1,500,000 of which you spoke a moment ago.

That money, since the Federal Government must pay 4 percent interest on bonds, will cost us over 4 percent interest, too. Where are the taxpayers of America coming out in the face of the fact you are losing money and have been for several years?

I am reading your report which shows that the repayment of the Columbia River and power system on the basis of 2½ percent interest charges was $64,648,792 ahead of scheduled payments as of June 30, 1959.

That looks good, of course, but since we have in a sense subsidized the power users of the Bonneville Power area to the degree we have, and certainly we have because they have been assuming money at 2½ percent interest when it costs us more than that most of the time. The American people have been paying interest on Government bonds to a greater degree than 2½ percent. If the present cost of new money of over 4 percent were charged in fiscal 1959 is it not true this purported surplus repayment would be wiped out in 1961 and by fiscal year 1964 there would be an actual deficit of over $90 million in the Bonneville Power payout program?

Under such a condition, and the present condition of the Federal Treasury, why was there no increase in Bonneville rates to prevent these losses?

Is there no provision in the power contracts for periodic reviews and revisions of such rates?

I ask you again, Why are you not asking for additional power rates for the Bonneville Power Administration?

Mr. CANNON. The original dam is completed. These are supplementary. At the time it was built, costs and interest were much lower than at present.

Now you take any private concern today. After they have built their dam, considering those years when construction was cheap, they estimate them at the percentage charged at the time they were built,

and the Bonneville system, of course, will pay in full at the rate of interest that was due on the cost at that time, so on the cost at that time you do not have to charge 4 percent now, whether you are public or private.

If you added this half a mill that would put you in the black, would it not?

Mr. PEARL. Yes; it would.

Mr. CANNON. And if you added that half mill you would still undersell all competition?

Mr. PEARL. Yes, that is true.

Mr. CANNON. Why not add that? You ought to add that half mill and you still would undersell all competition, and you would come out in the black every year.

I think that the committee would be inclined to approve any suggestion that might be made that you add the half a mill and stay in the black all the time, on the basis of rates and costs as of the time of the original construction.

I would suggest, and I would rather think the committee would go along with it, that you should add that half mill and stay in the black all the time and still undersell all competition.

Mr. PILLION. Is the Coulee project part of the Bonneville Administration?

Mr. PEARL. You mean sale of power from Coulee?

Mr. PILLION. Yes.

Mr. PEARL. That is correct.

Mr. PILLION. In line with what the chairman here has stated and what the gentleman from Iowa has stated, I note that your net investment on page 13 is $1,357 million as of now.

If we were to talk about present-day conditions and had a 4 percent interest rate on that investment, say approximately 2 percent for depreciation over 50 years, 2 percent for taxes—and I am just talking generally now—you would have a requirement there to meet basic costs of roughly 8 percent.

Eight percent of $1,350 million runs to over $100 million, and your net revenues are only about $68 million, so leaving out everything else, you do not have very much of a paying proposition here, do you?

Mr. PEARL. Not based on the figures you have given.

Mr. PILLION. That is right, and 4 percent is a sort of normal return today; in fact, it is very low. We are paying something like 5 percent for money rather than 4 percent, so I am taking what I would consider to be a fair rate of interest at the present time.

The 2-mill power in this area is perhaps the lowest in the country, is it not?

Mr. PEARL. I believe that it is.

Mr. PILLION. If hydropower were built anywhere in the country it would cost more than 2 mills no matter where you go; is that true?

Mr. PEARL. Including the northwest.

Mr. PILLION. So that to that extent it is somewhat unfair competition for every other area in the country from the standpoint of meeting, regardless of the history of this thing, meeting that power rate. It is unfair to every other area in the country because a plant will not operate in Ohio at 6 or 7 mills when it can go to this particular area and obtain power at 2 mills; is that correct?

Now, then, some of the newer projects that are coming in—is Cougar one of your projects?

Mr. PEARL. Yes.

Mr. PILLION. What is that cost?

Mr. OSTRANDER. That is getting underway and we have no figure.

Mr. PILLION. What is your estimate?

Mr. OSTRANDER. I would judge that will run 4 to 5 mills per kilowatt-hour.

Mr. PILLION. That power is taken into your grid system, is it not, and still sold at 2 mills?

Mr. PEARL. Sold at our regular rates.

Mr. PILLION. That is certainly an uneconomic situation so far as the taxpayers of the country are concerned when you ask them——

Mr. PEARL. You realize we pool all of this.

Mr. PILLION. I realize that, but you certainly would not in your own business, Doctor, or in my business I would not if I were called upon to furnish this type of power, would not build a plant that will produce electricity at 4 mills per kilowatt-hour and then sell it for 2 mills unless you want to subsidize an area or group of people at the expense of the taxpayers at large. Is that true?

Mr. PEARL. That is true.

Mr. CANNON. The premise, however, my dear friend, is false. There is no subsidy here. It is economically sound.

It was built at less than 4 percent, and if you should charge 4 percent now you would be leaving the practice followed by every plant in the country, public and private. The private plants which built and financed their plants at less than 4 percent do not today charge 4 percent, or if they do they are making that much out of the consumers.

This is absolutely sound. It was built at less than 4 percent and it would be profiteering to charge 4 percent now.

Mr. PILLION. I think we are talking about two different things, Mr. Chairman. I think the chairman has reference to the original Coulee cost.

My questioning is related to the present and the new construction which costs 4 to 5 mills and yet we are charging the people who use that power only 2 mills based upon the old cost whereas we have the new cost today.

Mr. CANNON. But the gentleman understands this all goes into a pool, as was brought out by the gentleman from Iowa.

Mr. PILLION. That is right.

Mr. CANNON. The largest part of this pool was constructed when the going Federal rate was less than 4 percent.

Mr. PILLION. That is true. The thing I would like to say is this: This public power was intended to repay the costs of the capital investment without a profit. I agree with that philosophy that we should repay, and perhaps use it as a yardstick and as a leverage for private companies, but we have gone far beyond that.

We have not only invested the capital of the people of the whole country into these projects, but we are permitting these organizations to pay an unrealistic rate of interest. In other words, there is no provision here to have the prices go up to pay for present-day interest because they were built at a time when interest was really low, say at 2 or 2½ percent.

These projects certainly do not pay the same share of taxes that the private investment companies pay, and therefore to that extent they are being furnished a subsidy.

Interest costs of new projects are not reflected in the increase in new interest rates.

How is it possible to increase rates as suggested by the chairman and the gentleman from Iowa from 2 mills to 2½ mills to give a more fair and adequate return to the taxpayers at large for this huge investment?

Would the process for increasing the cost to 2½ mills be based upon or could that be initiated by your Administration, the Bonneville Power Administration?

Mr. PEARL. The Secretary of the Interior has been assigned that authority and responsibility, and if he were to elect to ask for an increase he would proceed just as we did this time. He would ask the Federal Power Commission to approve this increase in the rates, and if the Federal Power Commission approved it it would then become effective. Bonneville would operate in accordance with the new established rates.

Mr. PILLION. Is there initiation or recommendation by your Administration to the Secretary of the Interior?

Mr. PEARL. We provide the Secretary with all the data that you have been dicussing here today.

You ask us what a half percent increase in rates mean. I am speaking now about interest rates.

Mr. JENSEN. I see.

Mr. PEARL. All that material has been worked out by Bonneville and submitted to the Department of the Interior.

It is no problem at all to put in the record figures that either will check or will not check with yours. I assume yours were accurate, but that would be simple.

This material is all available to you as Congressmen, available to the Department of the Interior, and available to the Federal Power Commission.

You must realize, of course, there are two sides to the story.

The people in the Northwest look at $64 million payment ahead of requirements and say, "You have been overcharging us."

We operate on ground rules. These ground rules are established by the Department, so when we are instructed to use a given payout time, a given interest rate, and what I call ground rules, these calculations are all made and provided to the Department of the Interior.

Mr. PILLION. With respect to the amount of construction asked for this year, $1½ million less than the figures shown here——

Mr. PEARL. Yes. I think it would be well to put this in the record—our new funds for construction for 1961 are now estimated at $18,720,000 instead of $22,220,000.

Mr. PILLION. That construction money will be added to the capital investment?

Mr. PEARL. To the O. & N. which becomes our total budget?

Mr. PILLION. Will this $18 million be added to the capital investment?

Mr. PEARL. That is construction money; that is correct.

Mr. PILLION. How is that to be returned to the taxpayers? How is that $18 million construction money that you will ask for the year 1961 been returned to the taxpayers?

Mr. PEARL. Through the route of what we call payout, amortization of the capital invested. It will be returned over a period of 35 years on transmission facilities.

Mr. PILLION. At what rate of interest?

Mr. PEARL. Today it is 2½ percent.

Mr. PILLION. And we are paying 4 to 5 percent.

Mr. PEARL. Your statement is accurate, of course, but our rate has been set at 2½ percent and it has not been changed.

Mr. PILLION. Would it be realistic to put a limitation on the interest rate to be charged for repayment?

Mr. PEARL. You are asking me a question that is somewhat legal, by what route interest rates are established and by what route they are increased.

Mr. ANDERSEN. Would it be legal if this subcommittee were to require that none of these new construction funds were to be utilized until a 2½-mill rate were put on power at Bonneville?

Mr. PEARL. You are asking me a legal question. I do not know.

Mr. ANDERSEN. It would be within our province, would it not?

Mr. PEARL. That would be something for you to determine and not me.

Mr. ANDERSEN. I think we could say in our report that none of these new construction funds could be utilized until a 2½-mill rate was established on the wholesale production.

Mr. CANNON. They are paying every cent and accrued interest in accordance with terms of the original contract. They pay every cent they borrowed from the taxpayers within 35 years and at a rate of interest mutually agreed upon at the time.

Mr. ANDERSEN. I speak of the new construction.

Mr. CANNON. What could you ask more than that?

Certainly if I borrowed money from you and agreed to pay you 3 percent on it and the interset rate goes up to 7 percent you would not insist I should pay you 7 percent simply because it has gone up.

Mr. PILLION. That is true, but if I loan you money today at 3 percent it does not mean I have a contract to loan it to you a year from now at 3 percent, which is the situation here.

Mr. CANNON. I want to ask about that.

Mr. PILLION. New conditions arise and I am free to change my mind and perhaps ask for 4 percent.

Here the situation is the exact opposite.

Mr. CANNON. That is the thing I want to ask Dr. Pearl.

As and when your costs increase, your cost of construction and your cost of interest increases, you expect to make a corresponding increase in your rates I take for granted in the future?

Mr. PEARL. That is right.

Mr. CANNON. Although he has quite a surplus, he says that he is willing to go ahead and add one-half mill.

However, no one will say that the private utilities do not take care of themselves and use ordinary business precautions.

Before the Bonneville people come in here they have an arrangement and an understanding in the way of collaboration. There are consultations back and forth and private utilities endorse everything that Dr. Pearl has here.

Mr. PILLION. I am not interested in the vacillations of private utilities. I am trying to get a fair break for the taxpayers at large, to give them a fair return.

I understand that private utilities are not always without sins of commission and omission.

Mr. CANNON. I have never known them to be classed as philanthropic or benevolent associations.

Mr. PILLION. They are not that by any means and I am not here to protect their interests.

Mr. CANNON. Bonneville is not asking any favors of anyone. They are paying their way. They are paying back every cent with interest, and when costs have increased, and when interest increases, they will pay the increased cost and pay the increased interest and he will make adequate charges against the consumer. Dr. Pearl says so.

But to show you the advantages of this wonderful installation, even after they add this half mill and put it in the black, as the gentleman from Iowa said, they still undersell all competitors.

Is there anything further on this?

Mr. PEARL. Mr. Chairman, a question has come up here which should be explained.

Mr. Morthland, who is my Assistant Administrator and who was a regional solicitor before he accepted this position as an Assistant Administrator, is with me this morning. I would like to have him review this item of whether we can increase our rates as of today, because we are committed for a period.

Will that be all right?

CHANGE IN RATES

Mr. CANNON. Mr. Morthland, will you give us a statement on this situation?

Mr. MORTHLAND. Yes, Mr. Chairman. I appreciate the opportunity.

The point has been raised as to whether or not we might not increase our rates by one-half mill and stay in the black.

Under the Bonneville Project Act the Administrator or the Secretary of the Interior, who has delegated his marketing authority to the Administrator, may raise rates at any time that he desires with the approval of the Federal Power Commission.

However, he must review the rates at least once every 5 years.

Bonneville, in its practice over the years, has reviewed its rates at 5-year intervals. The last review period was December of 1959.

At that time Bonneville requested the Federal Power Commission to approve the continuation of its base rate for the next 5-year period.

While we would have the right to increase our rate this year a half mill, our contract structure is such that it would not become effective until the end of the 5-year review period because in practically all of our contracts we have a provision which protects the customer on the rate for a 5-year period, so an increase of one-half mill in our rate in 1960 would not become effective contractually so far as our customers are concerned until December of 1964.

Mr. JENSEN. You mean that the contract which was made with Bonneville Power customers previous to this time would still be in effect for an additional 5 years?

Mr. MORTHLAND. I think most of the contracts in effect today, with maybe a few small exceptions, continue in effect for more than 5 years except for the 5-year pullback provision in the private utility contracts.

Mr. JENSEN. There surely must be a provision in those contracts which states that should power rates be raised by the legal and official method, then the power user must pay the additional cost for that power.

Mr. MORTHLAND. Mr. Jensen, in the development of the contracts, considerably before my time, there were provisions incorporated into the contracts which guaranteed a rate to the customer for a 5-year period.

Mr. JENSEN. Sure, and that is all right; but your rates are looked into, your present rates are looked into, every 5 years.

Mr. MORTHLAND. Once every 5 years; yes, sir.

Mr. JENSEN. The contracting party, or the user of this power, the user who contracted with Uncle Sam and the Bonneville Power Administration, knew when he signed that contract that the power rates might be raised after the 1960 review.

Mr. MORTHLAND. 1959 review.

Mr. JENSEN. All right, after the 1959 review.

Mr. MORTHLAND. That is right, sir.

Mr. JENSEN. And if the Bonneville Power Administration, acting as Uncle Sam, has told those folks by word of mouth or by writing that regardless of when that contract was made, even though it was made in early 1959, their rates then in effect would be guaranteed for an additional 5 years, then I would say the Bonneville Power Administration has gone beyond their authority to make such a contract, because surely the Bonneville Power Administration knows that the power rates can be raised every 5 years, or they can be lowered every 5 years.

That being the fact, if the Bonneville Power Administration has contracts today with power users which guarantees a rate now in existence and has told these power users that that rate will be in effect for 5 years, then the Bonneville Power Administration has gone beyond its authority.

Mr. MORTHLAND. That may well be, Mr. Jensen. I would not argue the point before you.

It was established many years ago, on the opinion of the then General Counsel, and it has been generally adhered to since, that——

Mr. JENSEN. If the contract was made, for instance, in 1954, and had provided that a 5-year period rate was guaranteed at that particular rate, then, of course, that would be completely within the power of the Bonneville Power Administration and within the authority of the Bonneville Administration.

However, if that contract were entered into in 1955, for instance, then the Bonneville Power Administration could not under law guarantee that that rate would be in effect for 5 additional years.

Mr. MORTHLAND. No, I did not mean to say that. However, it could, under our opinion now, have guaranteed that that rate be at the same level until the next rate review date. That is the only point I make.

Mr. JENSEN. That is fine.

The point I was making was that the power purchasers of Bonneville power could not expect the 2-mill rate to be continued in effect after 1960.

Mr. MORTHLAND. 1964.

Mr. PILLION. I note on page 10 that your deficit for fiscal 1959 will be $6,609,000, about 10 percent of the gross revenue.

That loss was known in December of 1959, was it not?

Mr. MORTHLAND. Yes.

Mr. PILLION. In spite of that loss, as I understand it, your Administration has recommended a continuation of the 2-mill rate. Is that correct?

Mr. MORTHLAND. That is correct, for 5 years.

Mr. PILLION. In spite of increasing cost of operation and maintenance, increasing cost of interest rates.

Mr. MORTHLAND. That is correct.

Mr. PILLION. How do you intend to make up these losses? Is the determination to allocate costs, take them away from power and place them into flood control such that it will mean that part of the capital investment will be thrown into a general charge for the taxpayers throughout the country?

Do you have legal authority for that?

Mr. MORTHLAND. No, sir, we do not make those allocations.

Mr. PILLION. That will be a bookkeeping transaction which was not in the original authorization. Is that right?

Mr. MORTHLAND. Yes. I think the Corps of Engineers is charged with the primary responsibility for making allocations on flood control and navigation projects. We work in conjunction with them.

I think, addressing myself to your general question, Mr. Pillion, I might state a few more of the things we considered in trying to make this decision as to whether to stay with that rate for another 5 years.

There is the very good prospect of a change in allocation in some of the projects, notably a portion of the Grand Coulee cost to flood control, part of the cost of McNary to navigation. Navigation has proven to be a great deal more enhanced by the works at McNary than originally were supposed, and part of the costs of The Dalles navigation.

Those changes in allocation have already been recommended by the division engineer and we have considerable hope they will be approved and that would make a difference of in excess of $1.7 million per year in our payout requirements.

We have had this bad marketing situation for 3 years which Dr. Pearl has described.

Mr. PILLION. I might add a couple other items which you can also deduct from the capital cost and change the rules in the middle of the game. You can add fish and wildlife, recreation, beach erosion. You could go on with a long list of items and get to a point where you make no return to the taxpayer. It is just a question of estimates of bookkeeping.

The fact remains, however, that the taxpayers at large in the country are making a tremendous subsidy here and it is totally unrealistic insofar as finances are concerned. I am very, very disappointed in the manner in which many of these public service institutions, such as this is, are being administered.

Mr. CANNON. Would you say that was a matter of policy of the administration?

Mr. PILLION. I think, Mr. Chairman, it is a policy of the whole country, a loose and unrealistic operation.

Mr. FENTON. How long has Bonneville Power now been in existence?

Mr. MORTHLAND. Since 1937.

Mr. FENTON. Have they reviewed the question of change of rates every 5 years?

Mr. MORTHLAND. Yes, sir. I have been with Bonneville for only 6 years but I am quite sure they have done that every 5 years, yes, sir.

Mr. FENTON. Have they ever made a change in the rate?

Mr. MORTHLAND. No, sir, the base rate is the same as when it was originally established.

Mr. CANNON. Mr. Riley?

ADDITIONAL KILOWATT-HOURS

Mr. RILEY. Dr. Pearl, a while ago I understood you to say that if you needed some additional kilowatt-hours you could get it with additional water. Does that mean you would have to build further dams in order to get that additional supply of water?

Mr. PEARL. At the time the question was asked we were talking about steam versus storage.

Mr. RILEY. Yes.

Mr. PEARL. If a storage dam were put in we would net more firm power because of the storage. In other words, we would use that water during the time when the stream flow was low, so we would increase our firm power as a result of storage of water.

Mr. RILEY. What percentage of your firm power do you lose as a result of streamflow?

Mr. PEARL. Our firm power now is based upon the lowest year of record, and that is a base upon which we determine our firm power.

In other words, as the stream flow is high you are able to generate a larger amount and as the stream flow goes down it is less.

Anything to fill in this valley gives you more firm power and that can be done by water storage or by installation of steam.

Mr. RILEY. If you build this additional storage dam what percentage of increase would you have in your firm power? Can you give me an idea of that?

Mr. PEARL. That is an engineering problem that is easy to figure.

I cannot tell you offhand, however, there are a number of factors which enter into it. One is that when you put in this storage, the first storage project that goes in increases the firm the most. It is a triangular affair.

The time will come when storage will do no good at all. It will be of no value—so the value of storage is a function of when it is put in.

The first storage project is the most valuable.

Mr. RILEY. How many sites do you have above the present installations in which you could store water, and would not all of them have a certain amount of generation capacity?

Mr. PEARL. That is right. There are a number on the Snake River and there are a number on the tributaries of the Columbia.

I could not give you the time it will become uneconomic to put them in—that could be determined on present costs.

An appreciable amount of storage still can go in the United States. I assume you have been following the negotiations with Canada.

Mr. RILEY. Some of them.

Mr. PEARL. There are millions of acre-feet of storage that can go into Canada.

If released in accordance with Bonneville's request it will give us firm power.

Mr. RILEY. And it will help all of the installations up and down the Columbia River all the way down?

Mr. PEARL. That is correct.

Mr. RILEY. Would it be possible to put into the record the possibility of increase in firm power with your present installations? Would that be much of a job?

Mr. PEARL. It would take some calculation and we would have to take the first storage project and others. Some have been figured already.

At Hungry Horse, we know what it does for us in every project from there to the ocean. Firm power resulting from water storage is something that could be submitted for the record. It is a calculation and an engineering problem.

Mr. RILEY. If you could give us an estimate of the increase in firm power——

Mr. PEARL. Resulting from storage?

Mr. RILEY. Yes, resulting from storage.

Mr. PEARL. As of today?

Mr. RILEY. Yes.

(The information requested follows:)

The nominal prime power at all generating plants, both Federal and non-Federal, resulting from the storage at the Federal dams: Hungry Horse, Albeni Falls, and Grand Coulee based on 1959–60 installations is as follows:

	Kilowatts
Hungry Horse	904,000
Albeni Falls	172,000
Grand Coulee	712,000

PROGRAM DATA

Mr. FENTON. May I present these questions at this point which are for a revision of tables inserted last year?

(The questions referred to follow:)

Last year on page 768 of the hearings you gave us figures on the potential surplus generation and capacity above your market requirements that, as you stated, was "power going into the ocean each year." Will you furnish these same figures for fiscal year 1959 and as estimated for fiscal year 1960, fiscal year 1965, and fiscal year 1970?

Will you also furnish personnel data as given on page 769 of the fiscal year 1959, dropping off the 1958 data and adding 1961 data?

Last year your figures on contract engineering services indicated you had not contracted any of this work in fiscal year 1959. Have you contracted for any such work since that time, and, if so, to what extent?

Will you also furnish for the record the engineering costs covering engineering, design, and administration of the BPA construction work for fiscal year 1959 actual, and fiscal year 1960 and fiscal year 1961 estimated, giving the percentage of such costs to the total cost of the construction work for the corresponding year?

I also ask that you furnish for the record a tabulation for fiscal year 1959 and fiscal year 1960 to date, similar to that given on pages 750–765 of the fiscal year 1959 hearings.

(The information requested follows:)

Theoretical surplus generation, U.S. Columbia River Power System

[In thousands of kilowatts]

	Fiscal year 1959			Fiscal year 1959	
	Peak	Average		Peak	Average
July	868	2,479	January	1,034	2,018
August	428	1,433	February	1,080	1,837
September	807	516	March	1,074	1,441
October	851	338	April	1,066	2,079
November	1,065	849	May	1,096	2,107
December	960	1,282	June	762	1,967

U.S. Columbia River Power System

Estimated peak and average surplus—adverse hydro (1936–37)

[In thousands of kilowatts]

	Fiscal year 1960		Fiscal year 1965		Fiscal year 1970	
	Peak	Average	Peak	Average	Peak	Average
July	1,481	965	3,072	2,392	2,467	2,081
August	1,896	819	3,208	1,086	2,516	171
September	2,313	97	3,580	0	2,673	0
October	1,967	0	2,802	0	1,399	0
November	1,722	0	2,391	0	440	0
December	1,393	0	1,928	0	0	0
January	1,219	0	1,183	0	0	0
February	982	0	1,577	0	0	0
March	996	0	1,465	0	0	0
April	895	0	1,469	0	0	0
May	1,722	1,707	1,929	1,669	555	878
June	2,192	2,491	2,573	3,308	1,318	2,717

Estimated peak and average surplus—median month hydro

[In thousands of kilowatts]

	Fiscal year 1960		Fiscal year 1965		Fiscal year 1970	
	Peak	Average	Peak	Average	Peak	Average
July	1,372	1,241	2,938	2,967	2,329	2,827
August	1,970	1,131	3,284	1,757	2,587	1,037
September	2,323	429	3,585	85	2,655	0
October	1,978	414	2,802	269	1,376	0
November	1,771	669	2,422	409	461	0
December	1,457	667	1,979	406	0	0
January	1,397	916	1,460	748	0	0
February	1,330	915	1,930	747	0	0
March	1,444	914	1,947	750	106	0
April	1,170	1,522	1,790	1,615	186	679
May	2,128	2,411	2,384	2,775	1,046	2,047
June	2,049	2,186	2,432	3,070	1,190	2,480

NOTE.—Surplus indicated is the difference between the total Federal capability and the estimated firm, dump, and interruptible loads. The Federal capability has been adjusted for maintenance outages.

Bonneville Power Administration

Personnel by organization

Organization unit	1959 actual		1960 estimate		1961 estimate	
	Permanent positions	Total annual salaries	Permanent positions	Total annual salaries	Permanent positions	Total annual salaries
Administration:						
Office of the Administrator	15	$134,260	15	$134,260	15	$134,260
Washington, D.C., office	5	49,795	5	49,795	5	49,795
Subtotal	20	184,055	20	184,055	20	184,055
Division of Operation and Maintenance:						
Office of the Director	6	53,775	6	53,775	6	53,775
Area management and customer service:						
Portland	20	144,210	20	144,210	20	144,210
Seattle	28	191,530	29	197,815	29	197,815
Spokane	30	196,195	31	199,690	31	199,690
Branch of Customer Service and Power Requirements	31	223,580	30	213,570	30	213,570
Branch of System Operations and Power Resources	81	645,070	84	665,710	87	688,240
Area substation operations	266	1,829,229	261	1,794,307	261	1,794,307
Branch of maintenance	22	191,373	22	191,373	22	191,373
Area line maintenance	127	801,226	127	801,226	129	808,756
Area substation maintenance	128	861,836	132	884,061	134	894,294
Area meter and relay maintenance	84	616,634	85	623,109	85	623,109
Area communications maintenance	81	595,862	84	612,380	84	612,380
Branch of plant services	275	1,700,971	266	1,656,106	265	1,651,072
Subtotal	1,179	8,051,491	1,177	8,037,332	1,183	8,072,591
Division of engineering:						
Office of the Chief Engineer	17	143,925	15	130,070	15	130,070
Branch of System Engineering	49	435,920	52	452,990	52	452,990
Branch of Design:						
Office of Branch Chief	5	51,845	5	51,845	5	51,845
Drafting and graphics	28	138,817	28	138,817	28	138,817
Transmission design	47	369,425	47	369,425	47	369,425
Survey and mapping	64	367,985	64	367,985	64	367,985
Substation design	90	688,835	91	694,740	91	694,740
Branch of land	41	233,535	39	225,740	37	216,420
Branch of construction:						
Office of branch chief	10	67,945	9	61,325	9	61,325
Line construction	101	577,240	94	542,910	90	521,610
Substation construction	172	1,168,897	152	1,039,241	142	973,828
Subtotal	624	4,244,369	596	4,075,088	580	3,979,055
Division of Administrative Management:						
Office of the Director	12	99,520	12	99,520	12	99,520
Branch of Budget and Management	17	128,490	15	116,775	15	116,775
Branch of Finance and Accounts	103	564,134	106	578,095	107	584,085
Branch of Personnel Management	53	359,484	55	367,295	55	367,295
Branch of Administrative Services	87	441,514	88	455,121	87	451,056
Branch of Supply	172	984,099	168	965,744	168	965,744
Graduate trainees	10	47,760	11	53,745	11	53,745
Subtotal	454	2,625,001	455	2,636,295	455	2,638,220
Deduct annual cost of hourly pay increases	----------	−252,931	----------	----------	----------	----------
Deduct classifications effective less than half of year	----------	−23,729	----------	----------	----------	----------
Add within-grade pay increases (1960) and adjustment for conversion of annual salary rates to actual rates paid for 52 weeks	----------	11,222	----------	60,002	----------	59,518
Total permanent positions	2,277	14,839,478	2,248	14,992,772	2,238	14,933,439

BONNEVILLE POWER ADMINISTRATION—Continued

Personnel by organization—Continued

Organization unit	1959 actual		1960 estimate		1961 estimate	
	Permanent positions	Total annual salaries	Permanent positions	Total annual salaries	Permanent positions	Total annual salaries
Adjustment for lapses, temporary employment, changes in pay, etc. (See page 136 of appendix to the 1960 U.S. Budget)	----------	$100,902	----------	$313,228	----------	$486,561
01 Personal services	----------	14,940,380	----------	15,306,000	----------	15,420,000

No engineering services have been contracted for in fiscal years 1959 and 1960.

Engineering costs covering engineering, design and administration of the BPA construction work are as follows:

Fiscal year	Amount	Percent of total construction
1959 (actual)	$2,328,800	11.3
1960 (estimated)	2,404,200	11.2
1961 (estimated)	2,234,200	10.8

Aluminum Co. of America—Vancouver plant
FISCAL YEAR 1959

Aluminum Co. of America—Vancouver plant

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$2,135,744	$171,810	$171,810	$171,810	$171,810	$171,810	$171,810	$171,787	$172,630	$172,609	$171,479	$194,348	$222,031
Interruptible	2,294							235	228	176	1,151	504	
Total	2,138,038	171,810	171,810	171,810	171,810	171,810	171,810	172,022	172,858	172,785	172,630	194,852	222,031
Peak:													
Firm—kilowatts		111,750	111,750	111,750	111,750	111,750	111,750	111,750	111,750	111,750	111,750	[1] 152,250	152,250
Interruptible—do		0	0	0	0	0	0	15,000	15,000	15,000	750	[1] 0	0
Total—do		111,750	111,750	111,750	111,750	111,750	111,750	126,750	126,750	126,750	112,500	152,250	152,250
Plant capacity—do		210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000
Contracted from other sources—do		15,000	15,000	15,000	15,000	15,000	15,000				15,000	15,000	15,000
Unused capacity [2]—do		83,250	83,250	83,250	83,250	83,250	83,250	83,000	83,000	83,000	83,000	43,000	43,000

6 MONTHS, FISCAL YEAR 1960

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$1,333,281	$222,032	$222,031	$222,031	$222,031	$222,031	$223,125						
Interruptible	61					61							
Total	1,333,342	222,032	222,031	222,031	222,031	222,092	223,125						
Peak:													
Firm—kilowatts		152,250	152,250	152,250	152,250	152,250	152,250						
Interruptible—do		0	0	0	0	15,000	750						
Total—do		152,250	152,250	152,250	152,250	167,250	153,000						
Plant capacity—do		210,000	210,000	210,000	210,000	210,000	210,000						
Contracted from other sources—do		15,000	15,000	15,000	15,000		15,000						
Unused capacity [2]—do		43,000	43,000	43,000	43,000	43,000	42,000						

[1] May 15–31.

[2] Voluntarily curtailed.

Aluminum Co. of America—Wenatchee plant

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$1,499,108	$134,805	$134,805	$123,867	$123,867	$123,868	$123,867	$123,867	$123,867	$123,867	$123,867	$120,618	$117,943
Interruptible	4,527					378	1,545	1,868	501	235			
Total	1,503,635	134,805	134,805	123,867	123,867	124,246	125,412	125,735	124,368	124,102	123,867	120,618	117,943
Peak:													
Firm kilowatts		83,250	83,250	73,250	73,250	73,250	73,250	73,250	73,250	73,250	73,250	73,250	73,250
Interruptible do		0	0	0	4,500	6,400	6,000	21,400	20,000	15,000	0	0	0
Total do		83,250	83,250	73,250	77,750	79,650	79,250	94,650	93,250	88,250	73,250	73,250	73,250
Plant capacity do		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Contracted from other sources do		15,000	15,000	25,000	20,500	18,600	19,000	3,600	5,000	10,000	25,000	25,000	25,000
Unused capacity do		102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000

6 MONTHS, FISCAL YEAR 1960

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$714,219	$117,942	$117,943	$118,763	$119,583	$119,584	$120,404						
Interruptible	1,582					1,086	496						
Total	715,801	117,942	117,943	118,763	119,583	120,670	120,900						
Peak:													
Firm kilowatts		73,250	73,250	74,000	74,000	74,750	75,500						
Interruptible do		0	0	0	0	22,900	7,000						
Total do		73,250	73,250	74,000	74,750	97,650	82,500						
Plant capacity do		200,000	200,000	200,000	200,000	200,000	200,000						
Contracted from other sources do		25,000	25,000	25,000	25,000	2,100	18,000						
Unused capacity [1] do		102,000	102,000	101,000	100,000	100,000	99,500						

[1] Voluntarily curtailed.

Anaconda Aluminum Co.

FISCAL YEAR 1959

[1] Voluntarily curtailed.

Anaconda Aluminum Co.

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenues:													
Firm	$1,504,956	$125,415	$125,416	$125,416	$125,416	$125,396	$125,416	$125,435	$125,435	$125,435	$112,436	$125,370	$125,370
Interruptible	14,839				928	993	993	1,966	1,966	1,966	1,965	2,031	2,031
Total	1,519,795	125,415	125,416	125,416	126,344	126,389	126,409	127,401	127,401	127,401	127,401	127,401	127,401
Peak:													
Firm kilowatts		100,386	100,386	100,386	100,386	100,386	100,386	100,386	100,386	100,386	100,386	100,386	100,386
Interruptible do		0	0	0	812	814	814	1,627	1,627	1,627	1,627	1,627	1,627
Total do		100,386	100,386	100,386	101,198	101,200	101,200	102,013	102,013	102,103	102,013	102,013	102,013
Plant capacity do		127,800	127,800	127,800	127,800	127,800	127,800	127,800	127,800	127,800	127,800	127,800	127,800
Contracted from other sources do													
Unused capacity [1] do		27,400	27,400	27,400	26,600	26,600	26,600	25,800	25,800	25,800	25,800	25,800	25,800

6 MONTHS, FISCAL YEAR 1960

Revenue:													
Firm	$809,994	$132,274	$135,442	$135,466	$135,604	$135,604	$135,604						
Interruptible	74,229	7,323	12,878	12,877	13,717	13,717	13,717						
Total	884,223	139,597	148,320	148,343	149,321	149,321	149,321						
Peak:													
Firm kilowatts		111,000	111,000	111,000	111,000	111,000	111,000						
Interruptible do		2,310	10,554	10,551	11,352	11,352	11,352						
Total do		113,310	121,554	121,551	122,352	122,352	122,352						
Plant capacity do		127,800	127,800	127,800	127,800	127,800	127,800						
Contracted from other sources do													
Unused capacity [1] do		14,500	6,200	6,200	5,400	5,400	5,400						

[1] Voluntarily curtailed.

Harvey Aluminum Co.

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$812,017	$31,400	$48,817	$73,225	$73,370	$73,367	$73,370	$73,225	$73,225	$73,225	$73,225	$73,225	$72,343
Interruptible	718,035		24,494	29,866	62,341	76,454	76,305	77,183	76,450	74,982	73,515	72,048	74,397
Total	1,530,052	31,400	73,311	103,091	135,711	149,821	149,675	150,408	149,675	148,207	146,740	145,273	146,740
Peak:													
Firm kilowatts		39,000	40,400	60,600	60,720	60,720	60,720	60,600	60,600	60,600	60,600	60,600	60,600
Interruptible do		8	57,359	34,123	62,880	64,363	63,149	63,876	63,269	62,054	60,840	58,200	60,840
Total		39,000	97,759	94,723	123,600	125,083	123,869	124,476	123,869	122,654	121,440	113,800	121,440
Plant capacity do		(1)	(1)	(1)	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000
Contracted from other sources do													
Unused capacity [2] do					8,000	7,000	8,000	8,000	8,000	9,000	11,000	13,000	11,000

FISCAL YEAR 1960

Revenue:													
Firm	$438,758	$73,225	$72,633	$73,225	$73,225	$73,225	$73,225						
Interruptible	473,805	73,515	74,391	78,847	82,319	80,852	83,881						
Total	912,563	146,740	147,024	152,072	155,544	154,077	157,106						
Peak:													
Firm kilowatts		60,600	60,600	60,600	60,600	60,600	60,600						
Interruptible do		60,840	62,054	66,912	68,126	66,912	70,555						
Total do		121,440	122,654	127,512	128,726	127,512	131,155						
Plant capacity do		132,000	132,000	132,000	132,000	132,000	132,000						
Contracted from other sources do													
Unused capacity [2] do		11,000	9,000	4,000	3,000	4,000	1,000						

[1] Developmental period.

[2] Voluntarily curtailed.

Kaiser-Spokane aluminum reduction

FISCAL YEAR 1960

Kaiser-Spokane aluminum reduction

FISCAL YEAR 1960

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$4,057,105	$274,168	$338,592	$348,399	$348,541	$348,542	$348,541	$342,709	$342,613	$341,250	$341,250	$341,250	$341,250
Interruptible	666,830		6,727	57,784	91,386	122,208	118,144	130,751	65,042	1,458	1,896	4,798	66,636
Total	4,723,935	274,168	345,319	406,183	439,927	470,750	466,685	473,460	407,655	342,708	343,146	346,048	407,886
Peak:													
Firm ..... kilowatts		188,000	239,000	239,000	239,000	239,000	239,000	235,000	235,000	234,000	234,000	234,000	234,000
Interruptible ..... do		0	0	40,600	85,000	83,800	81,400	90,200	44,600	1,000	2,000	4,000	91,200
Total ..... do		188,000	277,200	279,600	324,000	322,800	320,400	325,200	279,600	235,000	236,000	238,000	325,200
Plant capacity ..... do		368,500	368,500	368,500	368,500	368,500	368,500	368,500	368,500	368,500	368,500	368,500	368,500
Contracted from other sources ..... do													
Unused capacity [1] ..... do		180,500	91,300	88,900	44,500	45,700	48,100	43,300	88,900	134,000	132,000	130,000	43,000

6 MONTHS, FISCAL YEAR 1960

Revenue:													
Firm	$2,047,360	$341,209	$341,208	$341,250	$341,250	$341,193	$341,250						
Interruptible	575,613	131,742	127,114	130,842	131,250	50,807	3,858						
Total	2,622,973	472,951	468,322	472,092	472,500	392,000	345,108						
Peak:													
Firm ..... kilowatts		234,000	234,000	234,000	234,000	234,000	234,000						
Interruptible ..... do		91,200	88,800	90,000	90,000	4,000	88,800						
Total ..... do		325,200	322,800	324,000	324,000	238,000	322,800						
Plant capacity ..... do		368,500	368,500	368,500	368,500	368,500	368,500						
Contracted from other sources ..... do													
Unused capacity [1] ..... do		43,000	46,000	44,000	44,000	130,000	46,000						

[1] Voluntarily curtailed.

Kaiser-Spokane Rolling

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$664,260	$56,875	$56,122	$51,041	$51,055	$51,042	$51,042	$56,875	$56,875	$58,333	$58,333	$58,334	$58,333
Interruptible	69,223	5,469	706	5,469	6,033	10,172	9,620	3,281	14,583	2,223	2,917	4,010	4,740
Total	733,483	62,344	56,828	56,510	57,088	61,214	60,662	60,156	71,458	60,556	61,250	62,344	63,073
Peak:													
Firm ..... kilowatts		39,000	35,000	35,000	35,000	35,000	35,000	39,000	39,000	40,000	40,000	40,000	40,000
Interruptible ..... do		3,750	3,750	3,750	4,750	7,250	7,000	2,250	10,000	2,250	2,000	2,750	3,250
Total ..... do		42,750	38,750	38,750	39,750	42,250	42,000	41,250	49,000	42,250	42,000	42,750	43,250
Plant capacity ..... do		45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Contracted from other sources ..... do													
Unused capacity [1] ..... do		2,000	6,000	6,000	5,000	3,000	3,000	4,000		3,000	3,000	2,000	2,000

6 MONTHS, FISCAL YEAR 1960

Revenue:													
Firm	$350,001	$58,334	$58,333	$58,333	$58,334	$58,333	$58,334						
Interruptible	20,416	5,833	4,375	6,158	1,458	1,094	1,458						
Total	370,417	64,167	62,708	64,531	59,792	59,427	59,792						
Peak:													
Firm ..... kilowatts		40,000	40,000	40,000	40,000	40,000	40,000						
Interruptible ..... do		4,000	3,000	4,250	1,000	750	1,000						
Total ..... do		44,000	43,000	44,250	41,000	40,750	41,000						
Plant capacity ..... do		45,000	45,000	45,000	45,000	45,000	45,000						
Contracted from other sources ..... do													
Unused capacity [1] ..... do		1,000	2,000	1,000	4,000	4,000	4,000						

[1] Voluntarily curtailed.

Reynolds, Troutdale

FISCAL YEAR 1959

Reynolds, Troutdale

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$1,531,229	$164,354	$164,354	$164,355	$115,354	$115,354	$115,354	$115,354	$115,354	$115,354	$115,334	$115,354	$115,354
Interruptible	788,629	5,104	5,104	4,083	87,265	84,729	85,846	86,771	86,771	86,771	86,756	86,771	82,688
Total	2,319,858	169,458	169,458	168,438	202,619	200,083	201,170	202,125	202,125	202,125	202,090	202,125	198,042
Peak:													
Firm ..... Kilowatts		112,700	112,700	112,700	79,100	79,100	79,100	79,100	79,100	79,100	79,100	79,100	79,100
Interruptible ..... do		3,500	3,500	2,800	83,300	58,100	59,500	59,500	59,500	59,500	59,500		
Total ..... do		116,200	116,200	115,500	162,400	137,200	138,600	138,600	138,600	138,600	138,600	138,600	135,800
Plant capacity ..... do		190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000
Contracted from other sources ..... do		26,600	26,600	26,300	26,600	51,800	51,800	51,800	51,900	51,800	51,800	51,800	53,900
Unused capacity [1] ..... do		47,200	47,200	47,200	1,000	1,000	400	400	400	400	400	400	300

SIX MONTHS, FISCAL YEAR 1960

Revenues:													
Firm	$681,598	$115,354	$115,102	$114,265	$112,292	$112,292	$112,292						
Interruptible	114,566	67,013	44,891		3,062								
Total	796,564	182,367	159,994	114,265	115,354	112,292	112,292						
Peak:													
Firm ..... Kilowatts		79,100	79,100	79,100	77,000	77,000	77,000						
Interruptible ..... do		46,900	45,500	0	2,100	0	0						
Total ..... do		126,000	124,600	79,100	79,100	77,000	77,000						
Plant capacity ..... do		190,000	190,000	190,000	190,000	190,000	190,000						
Contracted from other sources ..... do		63,700	63,700	61,600	61,600	63,700	65,100						
Unused capacity [1] ..... do		300	1,700	49,300	49,300	49,300	47,900						

[1] Voluntarily curtailed.

Reynolds, Longview

FISCAL YEAR 1959

	Total	July	August	September	October	November	December	January	February	March	April	May	June
Revenue:													
Firm	$2,005,499	$130,375	$130,375	$130,375	$179,375	$179,375	$179,375	$179,375	$179,374	$179,375	$179,375	$179,375	$179,375
Interruptible	116,463	11,375	12,250	22,750	3,980	4,900	6,125	6,520	9,188	9,625	9,625	9,625	10,500
Total	2,121,962	141,750	142,625	153,125	183,355	184,275	185,500	185,895	188,562	189,000	189,000	189,000	189,875
Peak:													
Firm kilowatts		89,400	89,400	89,400	123,000	123,000	123,000	123,000	123,000	123,000	123,000	123,000	123,000
Interruptible do		7,800	8,400	37,800	3,000	4,200	4,200	5,400	6,600	6,600	6,600	6,600	7,200
Total do		97,200	97,800	127,200	126,000	127,200	127,200	128,400	129,600	129,600	129,600	129,600	130,200
Plant capacity do		127,200	127,200	127,200	127,200	127,200	127,200	128,400	129,600	129,600	129,600	129,600	130,200
Contracted from other sources do													
Unused capacity [1] do		30,000	30,000		1,000								

6 MONTHS, FISCAL YEAR 1960

Revenue:													
Firm	$1,085,391	$179,327	$179,375	$179,375	$182,438	$182,438	$182,438						
Interruptible	40,305	9,623	10,500	10,558	9,187		437						
Total	1,125,696	188,950	189,875	189,933	191,625	182,438	182,875						
Peak:													
Firm kilowatts		123,000	123,000	123,000	125,100	124,800	125,100						
Interruptible do		6,600	7,200	8,400	6,300	0	300						
Total do		129,600	130,200	131,400	131,400	124,800	125,400						
Plant capacity do		130,200	130,200	131,400	131,400	131,400	131,400						
Contracted from other sources do													
Unused capacity [1] do		600				7,000	6,000						

[1] Voluntarily curtailed.

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CONSTRUCTION

Mr. CANNON. You are asking $20,220,000 for construction.

Do you have any new construction starts in your program this year?

NEW STARTS

Mr. PEARL. Yes; we do have.

Mr. CANNON. Using the map——

Mr. PEARL. We have a chart here which shows you new starts.

If you would like to have Mr. Starr show you where they are on the map he can do that.

Which way would you rather have it, in dollars or in physical properties?

Mr. JENSEN. Both of them.

Mr. CANNON. You may present that as you prefer.

Mr. PEARL. In our budget for 1961 we are asking for $13,341,000 for construction of work which is now in progress.

By way of new construction in our 1961 budget we are asking for $6,515,000. Those are the dollar values.

Now I will ask Mr. Starr to point out on our map where this new construction will be.

Mr. STARR. We have a summary statement covering these new starts which I could supply for the record.

Mr. CANNON. It will be inserted in the record at this point.

(The information requested follows:)

SUMMARY STATEMENTS OF PRINCIPAL 1961 CONSTRUCTION NEW STARTS

System reactive facilities (item 150)

The addition of reactive capacity to the main transmission grid is a broad, long-range, continuing program which is related to the addition of generating capacity. 1961 new starts amount to 100,000 kilovolt-amperes. These installations will be completed by the fall of 1962.

Rocky Reach-Maple Valley No. 2 (item 182)

It is proposed to construct a second 345-kilovolt line, approximately 129 miles in length, from the Chelan Public Utility District's Rocky Reach switchyard to the Bonneville Power Administration's Maple Valley substation. The two Rocky Reach-Maple Valley lines will be operated at 230 kilovolts until additional transmission capacity is required into the Puget Sound area from the east. The Administration will install the 230-kilovolt Maple Valley terminal for line No. 2, and the district will supply the Rocky Reach terminal. The No. 2 circuit will consist of approximately 78 miles on single-circuit towers, and 51 miles strung on the open side of the double-circuit towers being erected as part of the No. 1 line. Energization is scheduled for October 1963.

This project is necessary to transmit that portion of the power for the Puget Sound area, beginning in the 1963–64 load period, which will be supplied from Federal plants and from non-Federal plants for which the Administration has firm wheeling commitments.

Hanna substation additions (item 184)

It is planned to install a 230-kilovolt line terminal with a circuit breaker, and reconnect the transformers at the Hanna substation to 230 kilovolts. The California Oregon Power Co. presently serves this station by transfer at 115 kilovolts and plans to change the transmission voltage to 230 kilovolts. Energization is scheduled for September 1961. Conversion of the line to 230-kilovolt operation requires reconnection of the transformer and the installation of a 230-kilovolt terminal.

East Wenatchee area service (item 247)

It is proposed to construct approximately 8 miles of 115-kilovolt transmission line from the Administration's Keokuk substation to the vicinity of East Wenat-

chee, Wash., and there construct a 20,000/26,667/33,333-kilovolt-ampere, 115–13.8-kilovolt substation. This substation will be known as Eastmont substation and will serve the Douglas County Public Utility District. Energization of these proposed facilities is scheduled for July 1962.

The Douglas County Public Utility District has requested that the Administration supply the power requirements of its East Wenatchee service area presently supplied by power purchased from the Chelan County Public Utility District under a power contract between the two districts. The districts plan to terminate this contract upon availability of power from the Administration's Eastmont substation.

Power is presently delivered to the Douglas County Public Utility District by the Chelan County Public Utility District at the latter's Wenatchee 115–34.5-kilovolt substation. From this point, Douglas has a 34.5-kilovolt transmission system extending to its East Wenatchee service area. These facilities are heavily loaded and will shortly become inadequate. It has been determined that the most feasible method of serving the Douglas County Public Utility District at East Wenatchee on an overall cost basis, is construction by the Administration of the proposed transmission line and substation, and construction by the district of necessary distribution facilities from this delivery point.

Fern Ridge substation (item 362)

It is proposed to construct a 3,000-kilovolt-ampere, 115–12.5-kilovolt substation on the Administration's Eugene-Mapleton 115-kilovolt transmission line, approximately 12 miles west of Eugene and in the vicinity of Veneta, Oreg., for service to the Lane County Electric Cooperative. This substation is scheduled for energization in September 1961.

The Lane County Electric Cooperative presently serves its loads in the area concerned by means of low-voltage lines from a 4,500-kilovolt-ampere, 12–34.5-kilovolt transformer located in the Administration's Eugene substation. Loads on the cooperative system in this area have been increasing to the point where poor voltage conditions are being experienced. In addition, the capacity of the Administration's existing 12–34.5-kilovolt transformation at Eugene substation will soon be exceeded. Engineering and economic studies demonstrate that construction of the proposed new facilities is the most feasible plan, on an overall cost basis, for meeting the increasing loads in the Veneta area.

Hampton substation (item 363)

It is proposed to construct a 3,000-kilovolt-ampere, 115–14.4/24.9-kilovolt substation on the Administration's Redmond-Burns 115-kilovolt transmission line, approximately 53 miles east of Bend, Oreg., for service to Central Electric Cooperative. Energization of this substation is scheduled for November 1961.

Central station power is not now available in the Hampton area. Extension of the cooperative's lines into the area heretofore has not been feasible due principally to the long subtransmission line required. Service to this area can be rendered on an economic basis by means of the proposed Hampton substation on the Redmond-Burns 115-kilovolt line. The cooperative will construct approximately 50 miles of distribution circuits from the Hampton substation.

Gold Beach substation additions (item 378)

It is proposed to construct a 115-kilovolt terminal position with circuit breaker in the Administration's Gold Beach substation for service to the Coos-Curry Electric Cooperative. The energization of this terminal position is scheduled for October 1961.

The Coos-Curry Electric Cooperative presently serves its loads in the Brookings area from its 69-kilovolt point of delivery in the Administration's 15,000-kilovolt-ampere, 115–69-kilovolt Gold Beach substation. The cooperative has two 69-kilovolt transmission lines between Gold Beach and Brookings, one of which is constructed for 115-kilovolt operation. The cooperative has requested the Administration to provide the necessary 115-kilovolt facilities at Gold Beach to permit operating this line at 115 kilovolts. Construction of the proposed new 115-kilovolt terminal facility will avoid the necessity of the Administration's installing additional 69-kilovolt transformer capacity in the Gold Beach substation to serve the cooperative's increasing loads.

General structures and improvements (item 810)

The following new items are included in the proposed program for fiscal year 1961:

New construction	Station	Scheduled completion
Storage facility additions	J. P. Alvey	September 1961.
	J. D. Ross	Do.
Roof replacements	G. H. Bell	June 1961.
Roof installation	J. D. Ross	October 1961.
Paving	do	July 1961.
	Big Eddy	Do.
	Longview	June 1961.
Road relocation	Olympia	Do.
	Grand Coulee	Do.
Hot-stick storage facilities	do	February 1961.
	Hot Springs	Do.
Oil piping	J. D. Ross	March 1961.
	Oregon City	May 1961.
Electric space heating	J. D. Ross	Do.
Supply service center	do	November 1962.

Transformer additions (item 871)

It is proposed to add the following additional transformer capacity in existing substations of the Administration in order to keep pace with load growth.

Substation	Customer	Present transformer rating (kilovolt-amperes)	Proposed transformer rating (kilovolt-amperes)	Energization date
Bremerton	Puget Sound Naval Shipyard	27,000	39,000	October 1961.
Ione	Columbia Basin Electric Cooperative	1,500	2,500	June 1961.
Wren	Consumers Power, Inc	3,000	10,500	September 1961.

Circuit breaker replacements (item 880)

New work proposed in 1961 consists of the replacement of eight and the rebuilding of four 230-kilovolt circuit breakers as follows:

Substation	Number of breakers	Type of work	Interrupting rating, kilovolt-ampere		Scheduled completion
			Present	Proposed	
Columbia	4	Rebuilding	3,330,000	7,500,000	June 1961.
Do	1	Replacement.	3,330,000	7,500,000	Do.
Midway	4	do	7,500,000	15,000,000	May 1962.
Ross	3	do	3,500,000	7,500,000	January 1962.

ROCKY REACH—MAPLE VALLEY NO. 2

Mr. STARR. Roughly 50 percent of the new construction this item of $6,515,000, is in one facility which is a second circuit from the Rocky Reach Dam on the upper Columbia to a station in the vicinity of Seattle called Maple Valley. This line is to be constructed for 345,000 volts and operated initially at 230,000 volts until such time as additional capacity is required.

Under construction we have roughly twice as much as we have in the way of new starts, and there is a line in the same area now under construction, approved previously, which will be completed in about a year and a half.

This new one is to reinforce that existing one, and for a period of about 2 years it is to prevent dangerously overloading some of the city of Seattle facilities by about 1964 in the event of an outage of this line now under construction.

About 2 years after that, in 1966, this circuit will be needed as a normal load flow supporter, and we are proposing to get it in there at such time as it fits into the program best, primarily in the beginning to prevent dangerous overloads in this area of Seattle due to an outage of this circuit.

In getting the additional capacity we could increase the circuit now under construction to 345,000 volts, or we can go even higher if this were deemed advisable, but this would result in placing a very large amount of power on one circuit, and delivering that power to one location. With the loss of that circuit due to unscheduled and unexpected outages there would tend to be a system collapse. We always get these circuit outages two or three times a year, due to lightning storms and things of that character.

Rather than increasing the capacity of this existing circuit to a very high level by raising the voltage we are proposing to reinforce it with another circuit, and raise the voltage of both of them later when required.

The Rocky Reach-Valley No. 2 project will utilize roughly half of new construction funds.

The remaining items in new construction are system reactive capability distributed reasonably over the entire area to support the voltage. We have two smaller substations being constructed. We have one serving a nickel plant which is being raised in voltage, the Hanna plant, from 115,000 to 230,000 volts. The other item taking a substantial portion of the new construction money is a circuit breaker replacement program, changing circuit breakers at the Columbia and Midway substations from the capacity which was provided originally (and as large as was available at that time) to the capacity required now. These changes will provide short circuit rupturing capability to take care of the additional generating plants being installed in these areas, the Rocky Reach area and at Midway substation.

Mr. CANNON. The committee will recess until 2 o'clock this afternoon.

MONDAY, MARCH 7, 1960.

Mr. CANNON. The committee will be in order.

Dr. Fenton.

Mr. FENTON. Mr. Chairman, Mr. Jensen has several questions he would like me to ask in his absence.

Mr. CANNON. Will you proceed.

Mr. FENTON. Dr. Pearl, Mr. Jensen asked me to ask these questions.

TRANSMISSION OF NON-FEDERAL POWER

I would like to get the record straight in simple, direct words with regard to a question I asked last year, which is related to whether Bonneville was constructing transmission lines over which only non-Federal-generated power would flow. Here is the question, and I would like it answered with a direct "yes" or "no."

Is it not true that only non-Federal-generated power will flow over the Rocky Reach-Columbia line and the Rocky Reach-Valley line now being constructed by Bonneville?

Mr. PEARL. I can say definitely that a small line was built from the Round Butte plant of the Portland General Electric Co. to our Redmond substation, over which PGE power is the only power that flows. That was to bring their new generation in to our grid system. With reference to the two others you mentioned—I do not believe we have one line in our main grid that carries only Federal or only non-Federal power. I think every line except these small lines from a point of generation to our grid would be the only ones I know of.

I would like to ask Gene Starr to point out the ones you have indicated, and perhaps add something to the answer.

Mr. CANNON. Mr. Starr, will you please indicate on the map the area covered by the question just asked by Dr. Fenton.

Mr. STARR. Yes, sir; I shall be very happy to.

The line from Rocky Reach Dam to Columbia actually will carry power not only from the Rocky Reach Dam in to the main system, but incrementally will carry power also from Grand Coulee by way of the Rocky Reach switchyard in to the valley substation. This constitutes a complete circuit from the Columbia substation by way of the Rocky Reach Dam to the Seattle area, through the circuit now under construction and one for which we are requesting authority at this time. These circuits from Rocky Reach to the Seattle area will carry not only Rocky Reach power, but also Federal power from the Grand Coulee-Chief Joseph area.

Actually, we are reinforcing the entire grid. We are putting more parallel paths in an existing grid over which the power will distribute in inverse proportion to the impedances of these elements of the grid.

Mr. FENTON. The system power flow diagram shows it to be true that it carries only non-Federal-generated power.

Mr. STARR. No; it cannot possibly show that, sir.

This diagram, sir, is a peak condition showing one time only, a peak condition. You could pick out a situation wherein by summing up all of the power flows you would find this situation at a particular moment to be true.

Mr. FENTON. It does show, then, the situation that you explained?

Mr. STARR. Under a peak condition with the resource in there at that particular point and at that loading, it could be true, yes.

Mr. FENTON. Does that often happen?

Mr. STARR. No. A great deal of the time it does not happen.

AUTOMATIC LOAD-FREQUENCY CONTROL EQUIPMENT

Mr. FENTON. Item 146. Is this equipment to be used to control the generation at Federal plants, or do you expect to use it to control all generation in the Pacific Northwest? If so, do you have the approval of all the major utilities involved? Frankly, I question whether the Federal Government should have such authority, and I would be surprised if the non-Federal utilities would agree to let Bonneville tell them when and at what rate they can operated their plants.

Mr. STARR. This is the automatic load and frequency control equipment which, to the best of my knowledge, all the agencies in the area

have agreed to, without exception. The Bureau of Reclamation and the Corps of Engineers are particularly involved because they have, large plants. The new non-Federal plants coming in at Rocky Reach Priest Rapids, and Wanapum have requested information on what we are doing in the way of acquiring and designing equipment in order that they also may purchase equipment to match this. The idea is that up to the present time the frequency of the Northwest power pool is controlled in general by the Grand Coulee powerplant. Usually two generators of about 250,000-kilowatt capacity are on control. That means each time a load change occurs in the area, these generators must change their output in proportion to the change of load in order to maintain a constant frequency. This is done by frequency control, which means the governors and the gates and the generator windings themselves get a severe workout in a variable type of loading, which is not in the best interest of the operation of the machines, and we do not get as fast a response to change in loads as we will get when we share this change among the various plants operating on the system.

This new control system will apportion to the several large plants the job that is now being done by just two generators at the Grand Coulee powerhouse. It will make for a much more efficient and a much better operation particularly when interconnections with other areas are involved.

WHEELING NON-FEDERAL POWER

Mr. FENTON. Item 180, the gentleman from Iowa also says:

> I again question the authority for the Bonneville Power Administration to construct major transmission lines for the sole purpose of wheeling non-Federal power. The BPA power flow diagram shows this to be the case. No Federal generation will flow over this line. These non-Federal utilities could and should have constructed this line for their own use.
>
> I do not believe the taxpayers of the Nation should be called upon to supply funds for this line. This line would be operated Federal and other tax-free, with an interest charge of less than that paid by the Treasury for the required funds.

Will you comment on that?

Mr. PEARL. At the time we started this wheeling program, we supplied the legal opinion to this group and to the Senate which indicated our authority to wheel non-Federal power primarily if it were a public project. From the economics of it, of course, with Bonneville having a major grid in the Northwest it is more economical for Bonneville with a small addition to its grid to take this power to load centers than for a company putting in a generating project to put in lines.

You see, one line does not give you firm power. It takes two lines or more in case of outages. Anyone else putting it in, if they were to do it individually, would have had to put in much more in the way of transmission than Bonneville would have to, to provide the same service for the Northwest. I feel rather sure that as far as the overall economy of the area is concerned, this program has saved the people of the Northwest considerable money.

MARKETING AREA

Mr. FENTON. What do you consider the Bonneville marketing area to be?

Mr. PEARL. Montana west of the Continental Divide, northern Idaho, Oregon, and Washington.

Mr. FENTON. I wanted to ask that this morning, but I did not get to it.

Now one final question that Mr. Jensen is interested in.

ROCKY REACH-VALLEY LINE

Item 182. This is a duplicate line to the initial Rocky Reach-Valley line. Like that line, its only purpose, as shown by the BPA power flow diagram for 1964, is to transmit non-Federal-generated power. The reference in the justifications to transmitting power from Federal plants does not appear to be in accord with the facts. Is this not true? Perhaps you would like to explain how your flow diagrams show one thing and your justifications say another.

Mr. PEARL. Mr. Starr covered that briefly before, but I think maybe he should expand on that now.

Mr. STARR. These flow diagrams have to be carefully interpreted in determining the performance of a line or a facility in a system. They must be interpreted in terms of an incremental load flow study, that is, in terms of how the line operates when various generating and load facilities are varied. If we operate the Rocky Reach plant at the designated loading that you had on your load flow diagram, and then changed the loading of the Federal plants and the load in the Puget Sound area which is being served by those plants, we will find the loading of those circuits varies with the flow from the Federal plants to the Puget Sound load just as it will vary when we change the output of the Rocky Reach plant, showing that incrementally, Federal power flows are involved even though you can add up the figures from the plant and show the appearance of only Rocky Reach power flowing over those circuits. Nevertheless, if that circuit were out of there and the plant were out, we would find a redistribution of loading over the other circuits showing that the circuits being put in from Rocky Reach to Valley actually are performing, as I indicated before, as a part of the overall grid. Incremental studies only can show their true performance in the grid. We would be happy to supply, if you would like to see them, some of these incremental studies, which I have with me, incidentally.

You referred to the second Rocky Reach circuit. I indicated this morning that by about 1966 the second Rocky Reach circuit will be necessary for normal load-flow requirements due to the growth of loads in the Puget Sound area and the supplying of those loads, not only by Rocky Reach, Wanapum, and Priest Rapids, but also by Grand Coulee, Chief Joseph, and the Federal plants in that area.

1964, however, will impose a requirement on us for an additional circuit there in order to avoid, at times of outage on the first circuit, very serious overloading and probably complete disruption of the Seattle city power system due to causing power flows in that system in excess of the heating capacity of the circuit involved when the single Rocky Reach-Valley circuit goes out on a peak.

We are simply saying that in order to have a reasonably reliable system in that area, we would like to put that circuit in a year or so ahead of the time when it will be needed for normal load-flow support.

Mr. FENTON. A glance at the map shows quite a diagram with lines which have been completed.

Mr. STARR. There is a very heavy accumulation of transmission facilities into this Seattle area. The load growth in the Puget Sound area is very substantial. It is made up of the city of Seattle, the city of Tacoma, and the Puget Sound Power & Light Co., serving this entire area. The lines which have been built into that area are moving power in there to meet the load. Not at the present time, but by 1964 when this proposed line is completed, these loads will be served by Rocky Reach Dam in part, but in much greater part by Chief Joseph Dam and the Grand Coulee Dam, and also in part by Wanapum and Priest Rapids.

This second circuit we are proposing will be strung 51 miles on double-circuit towers which are being installed now for the first line, and the remainder on single-circuit towers on both ends to complete the facility. It is the connection between us and the city of Seattle which gets in trouble when this original line goes out if we do not have the second one by 1964.

By 1966, however, both are necessary to give us an economical load-flow condition into the area.

Mr. FENTON. Those lines which are already constructed would not be able to take the additional power?

Mr. STARR. No. They would be overloaded by that time.

Mr. FENTON. What is the capacity of those lines?

Mr. STARR. The one from Chief Joseph coming over this right-of-way and down into Covington is a 345,000-volt line operating at that voltage, and will be carrying at the time you indicate around 400,000 kilowatts on peak. The other three lines will be carrying on the order of 200,000 kilowatts each on peak; a little less than that, perhaps. They are 230,000-volt lines operating at 230,000 volts with the exception of one which is designed for 345,000 volts and will be ready for that voltage whenever the load-flows into this area indicate it should be raised to that voltage.

These two, the ones we have just been discussing, Rocky Reach-Maple Valley, are designed for 345,000 volts but will operate at 230,000 volts until the load-flows indicate they must be increased in capacity.

The three below that, two into Covington and one into Tacoma, are 230,000-volt circuits. The one coming into Tacoma can be raised to 287,000 volts, however. The one coming into Olympia from Grand Coulee is a 287,000-volt circuit operating at 300,000 volts, with a normal capacity of about 275,000 kilowatts. It is over 230 miles long. So we have a limitation of capacity there.

That represents the total capacity into this area.

Mr. FENTON. What is the capability of those lines?

Mr. STARR. The total capability?

Mr. FENTON. Yes.

Mr. STARR. I would have to get that for the record. I could not readily add it up here, but I would say the reliable capability might be arrived at something like this: 600,000 kilowatts over these three, 400,000 kilowatts more over this one, for a million. Then over these two when they are operating at 230,000 kilovolts, perhaps 300,000. That

makes 1,300,000. Then down here perhaps 200,000 each, 600,000 more, 1,900,000. Down here perhaps 250,000. Some place around 2,150,000 kilowatts in that area. That is purely off the cuff.

Mr. PEARL. It is shown in the budget.

Mr. STARR. How close did I come? I estimated it at 2,150,000 kilowatts and it is listed at 2,310,000 kilowatts on the diagram.

COORDINATION WITH THE CORPS OF ENGINEERS

Mr. CANNON. Is your total construction program coordinated fully with the Corps of Engineers' schedules for additional generation coming into the system?

Mr. PEARL. Yes, it is. We obtain schedules from them. That is the basis upon which our construction program is planned.

HARNEY ELECTRIC COOPERATIVE

Mr. CANNON. Last year the Congress put a prohibition on the use of funds for the Harney Electric Cooperative line. Review that proposal, if you will, and explain what you have spent to date, if you have spent anything, and then tell us why you are requesting this year over a million dollars, $1,052,000, for 1961 in view of the fact that you did not use anything at all last year.

Mr. PEARL. The limitation was placed on us subject to the Harney Electric Cooperative obtaining its loan from REA. They were asking for something between $5 million and $6 million. They obtained that loan, and on that basis we were then free to go ahead with the construction of our Harney line, which we are doing.

The request we have in this 1961 budget is, of course, the money we shall need to carry out the construction on the lines which will serve Harney.

Mr. CANNON. Is that loan contingent, Mr. Administrator, upon any conditions which it is necessary for you to meet? Are there any strings on it?

Mr. PEARL. The only limitation I am aware of is their ability to obtain funds from REA to put in a distribution system.

Mr. CANNON. There is no inhibition on you, then. It is merely a question of their complying with this requirement.

Mr. PEARL. That is right.

Mr. CANNON. Does the law impose any conditions on Harney?

Mr. PEARL. The conditions which were imposed on Harney, of course, were to have been met by Harney.

Mr. CANNON. Have they been met?

Mr. PEARL. We are instructed by REA that they have been met.

PAYOUT SCHEDULE

Mr. MAGNUSON. You are well ahead of schedule, are you not, on repayment?

Mr. PEARL. Yes, as of our last report we are $64 million ahead, what we tend to call surplus, payment ahead of requirements.

Mr. MAGNUSON. What is the prognosis? Do you figure that the system will pay out?

Mr. PEARL. Yes. Our studies indicate that we will live on some of this surplus during the next 5 years, but we have no indication

that we shall not have some surplus left at the end of the 5-year rate period.

Mr. MAGNUSON. Do you expect to go in the red for several years now?

Mr. PEARL. Yes. We had a long discussion about that this morning. You realize that the time we had to make this decision was in the fall of 1959. Of course, our studies were started early in 1958. During 1958, of course, we went in the red some. Then in 1959 we went further into the red. That is not on an overall operation. That is just on an annual basis. After those 2 years, we still have $64 million, I believe, in surplus.

Mr. OSTRANDER. At the beginning of the 1960 fiscal year.

WHEELING OF NON-FEDERAL POWER

Mr. MAGNUSON. As to the "Wheeling of non-Federal power," this occurs only for relatively short distances; is that right?

Mr. PEARL. It goes into our main grid, and some of it, of course, goes an appreciable distance. In our justification for this wheeling program our general statement was that it did not appear that any large project could go in the Northwest without a wheeling program because there is no one load center which could absorb all that power from one large project. Therefore, it would go to various points such as Eugene, Oreg.; Seattle; Spokane; and Walla Walla. That meant that if each of these areas had been required to build a line to bring their part of the power, let us say, from Rocky Reach or Priest Rapids to their load center, the project would not have been feasible, but on the basis of wheeling over the Bonneville grid which was already in, all that was required was strengthening of the grid at certain points to do this. It would make it feasible and it would make it possible for these areas to obtain some of the power from this one given project.

Mr. MAGNUSON. And without burden on the Bonneville Power Administration?

Mr. PEARL. That is true. This is on a reimbursable basis, and it should not cost the taxpayers any money, because these lines and facilities we are putting in will be amortized in accordance with the rest of our lines over a period of 35 years.

Mr. MAGNUSON. That is all, Mr. Chairman.

Mr. FENTON. Mr. Starr, I do not believe you gave us the capability of items 180 and 182.

Mr. STARR. At 230,000 volts, they will have a reliable capability for that distance on the order of 200,000 kilowatts each. The loading can exceed that, but as units in a grid they cannot be carried very much above that and still sustain an outage.

Mr. FENTON. What will it be when it goes to 345,000 volts?

Mr. STARR. That would be double. It would be on the order of 400,000 kilowatts.

HARNEY ELECTRIC COOPERATIVE

Mr. FENTON. Item 721. What is the highest peakload to date on the Harney Electric system?

Mr. PEARL. It is not in operation yet. In our budget document we indicate that in 1962 it will be 18,690 kilowatts. If you will look

on page BP–51, we give you the estimated loads for each of the next 5 years. These estimates were made by REA working with Harney, and one of the Bonneville men took part in the estimating of the load. It is pretty hard to talk about the load today, because the line is not there yet.

Mr. FENTON. The system is working, though, is it not?

Mr. PEARL. Our transmission system?

Mr. FENTON. Yes.

Mr. PEARL. Our system is being extended to connect with the Harney Cooperative system. The Harney Cooperative has some lines in already, and is constructing a major extension to its system.

Mr. FENTON. The feasibility study shows they expect a peak in 1961 of 16,960 kilowatts.

Mr. PEARL. Yes.

Mr. FENTON. Do you really believe you will get such an increase in load in 2 years?

Mr. PEARL. You understand, this is an estimate which was worked out by people who should know what they are talking about. The REA had their men out there for months, and likewise the Harney engineers worked with them. As of the time our line is in operation, we will be in a better position to say whether they met this load estimate or they did not.

Mr. FENTON. Is Harney getting anything now?

Mr. PEARL. Harney is not getting any power from Bonneville presently. At present Harney Electric is buying its power from Idaho Power Co.

Mr. FENTON. Do you know what their load is?

Mr. PEARL. No, I do not.

Mr. FENTON. You do not know what the Harney Electric Power——

Mr. PEARL. In the meantime, you must remember Harney Electric has asked for $5½ million to put in a distribution system, and that is not in yet. They are now making a right-of-way survey to put the system in. The load on that distribution system they are putting in is, of course, the load that we will pick up. We are then talking about the power we will serve them. They have to put in 575 miles of distribution.

Mr. FENTON. Then you are not familiar with its load?

Mr. PEARL. No; I am not. A year ago when we were working on this, I did on one occasion call Idaho Power, the present supplier, to find out what the load was, but that did not mean anything, because the cooperative's distribution system, for which it has borrowed this money, is not in, so it could not have a big load yet.

(Off the record.)

Mr. FENTON. Will you find out for the record, then, what their present load is?

Mr. PEARL. What their present capacity is? Yes; we can get that from Idaho Power or from Harney County.

Mr. FENTON. Will you get that and put it in the record?

Mr. PEARL. Yes.

(The information requested follows:)

The capacity of the present interconnection between the Idaho Power Co. and the Harney Electric Cooperative system is 2,500 kilovolt-amperes. The power contract limits the delivery of power to 2,000 kilowatts. The maximum load on the Harney Electric Cooperative system to date was 636 kilowatts in January 1960.

IRRIGATION PUMPING

Mr. FENTON. I understand there is a serious question as to whether the estimated irrigation pumping load on which your future load estimates are based will result in depletion of the ground water to an extent which could well spell failure for the entire area involved. What portion of your estimated load is for irrigation pumping?

Mr. PEARL. An appreciable amount of the power is for pumping. Just what percentage is another figure I would have to get you for the record.

Mr. FENTON. Will you do that, please?

Mr. PEARL. Yes.

(The information requested follows:)

The estimated load for irrigation pumping is approximately 63 percent of total annual kilowatt-hour sales.

Mr. FENTON. What would be the effect on your net revenues and project feasibility if the irrigation pumping petered out through excessive depletion of ground water supplies?

Mr. PEARL. That is another figure we would have to get for the record. In other words, we would have to find out what percent of the load is pumping, and then recalculate feasibility on the basis of that load.

Mr. FENTON. Do you not have proper planning estimates?

Mr. PEARL. You understand REA made these studies, and they worked with the State engineers in Nevada. I am sure that you are right, that this question came up. Apparently the question was ansered entirely to the satisfaction of the REA, for the REA were the people who made these studies and who had to justify a loan by REA of $5½ million. It is based on that. Their studies were justified wherein REA gave Harney Electric $5½ million to put in a transmission system. If that $5½ million was approved, then we could go ahead with the project.

Mr. FENTON. If you will just put a detailed explanation of that in the record, that will be satisfactory.

Mr. PEARL. We will.

(The information requested follows:)

Estimated reduction in Bonneville Power Administration revenues without additional pumping installations

[Thousands of kilowatt-hours]

Year	Total irrigation sales included in estimate	Estimated sales to existing pumps [1]	Estimated sales to additional pumps	Requirements at BPA point of delivery for additional pumps [2]	Reduction in BPA revenue without additional pumping [3]
1962	24,065	9,300	14,765	17,400	$60,900
1963	26,530	9,300	17,230	20,300	71,000
1964	27,608	9,300	18,308	21,600	75,600
1965	28,657	9,300	19,357	22,800	79,800
1970	34,382	9,300	25,082	29,600	103,600

[1] Estimated kilowatt-hour requirements of pumps existing in the area served or to be served by Harney Cooperative.
[2] Estimated sales plus 18 percent distribution losses.
[3] Revenues in feasibility study estimated at 3.5 mills per kilowatt-hour.

NOTE.—The U.S. Geological Survey office, at Portland, Oreg., advises that on basis of Geological Survey Water Supply Paper 841, present pumping developments are far below the potential in the Oregon section of this service area and that there are no restrictions on ground water pumping. Nevada assistant State engineer advises that ground water depletion studies are in progress covering the King River and the Quinn River Valleys in Nevada.

Operation and Maintenance

Mr. Cannon. Taking up "Operation and maintenance," a request for $10,975,000, I note you are apparently achieving consideratable economy here through something which you term supervisory control and digital telemetering. There is a reference to this on page 82 of the justifications. Tell us something about this. What is this supervisory control and what is this digital telemetering?

Mr. Pearl. I shall ask Mr. Evans if he will give you a little description.

Mr. Cannon. Mr. Evans.

Mr. Evans. Supervisory control as used here means supervision of a substation from a centralized or remote point. The object of it is to provide faster control of the operation at the substation and to save on manpower and, consequently, on costs of such operation.

Mr. Cannon. Of course, in all our governmental operations we have supervisory control. Evidently this is a specialized character of control, a specialized character of supervision. In what respects does it differ from ordinary supervisory control?

Mr. Evans. This is an electrical control. For instance, we plan on installing facilities in our central building in Portland which will control adjacent substations such as Alcoa, Ross, Troutdale, Keeler, and St. Johns. By this means of having one man on duty at the central point, we can eliminate the manning around the clock at these other substations. We save appreciably in manpower.

Mr. Cannon. And achieve the same result?

Mr. Evans. Yes.

Mr. Cannon. You get just as much efficiency?

Mr. Evans. In fact, improved efficiency, because it can be operated more quickly from a central point. This man will press a button at Portland and a certain oil circuit breaker at Ross will open or close instantaneously, rather than have the operator go over and do this manually at our Ross substation.

We have gone into this very extensively over past years.

Mr. Cannon. Is this a recent development?

Mr. Evans. No. This has been going on for about 5 years.

Mr. Cannon. It has resulted in some economies?

Mr. Evans. Yes, sir. We have comparative figures which I shall be glad to read to you. We saved approximately 52 men by the program we have in effect, at an annual saving in their salaries of $406,000. These are gross savings, it is true, and from that amount we must deduct the cost of maintenance of the supervisory facilities themselves. There is a saving in manpower, which is difficult to obtain, as well as a saving in the salaries of these positions that we have eliminated.

As a matter of fact, in looking over our records, I find that 5 years from now we will have fewer operators than we had 5 years ago. So the number of operators is going downward, even though our facilities are increasing.

Mr. Cannon. That is due to mechanical improvement?

Mr. Evans. Yes, mechanical improvement and more widespread use of this program of supervisory control.

Mr. CANNON. You are obtaining the same results the telephone people are getting out of their dial system, eliminating telephone operators.

Mr. EVANS. That is true, sir.

DIGITAL TELEMETERING

Mr. CANNON. Now explain digital telemetering.

Mr. EVANS. This is automatic reporting back of intelligence from these unmanned substations to a central location on loadings, frequencies, meter readings, and other operating data which are ordinarily observed, written down, and sent in in the form of written reports. That is part of the work which will be eliminated. It will come in to a central location over telemeters or this digital device, to indicate centrally this intelligence we need to operate the system.

Mr. CANNON. How does this save money?

Mr. EVANS. It saves money and is part of the program of our supervisory control, in that we do not have operators out at these remote stations to write this information down. In other words, we need this information hourly, and the only way we can get it is either to have men out there to record it or to telemeter it in to a central intelligence headquarters.

Mr. CANNON. You say it is automatic?

Mr. EVANS. Yes, sir.

(Off the record.)

Mr. CANNON. That will be used from now on, and that means continued economy.

Mr. EVANS. That is true.

Mr. CANNON. Notwithstanding that, you ask for an increase of $77,000 here in the general administration item. Why do you need $77,000 more for administration?

Mr. PEARL. That is primarily because of the distributive factors we have. In other words, as our construction program decreases in volume and our physical plant becomes larger, more of the general administration is charged to operation and maintenance. In other words, the distributive factor we have accounts for most of the increase. There are some other items in there. Our health insurance is another item which has gone into the increase.

Mr. CANNON. That enters into the $77,000?

Mr. PEARL. Yes, sir.

Mr. CANNON. Has that been charged heretofore?

Mr. PEARL. No, I think this is the first year.

Mr. CANNON. The first year the insurance has been adopted?

Mr. PEARL. It is the first year we have been paying on it. It starts July 1 of this year.

EMERGENCY EXPENSES

Mr. CANNON. Give us the details on funds expended from your continuing fund for emergency expenses so far this fiscal year, if you have had any. Have you had any expenditures from that fund?

Mr. PEARL. I do not believe we have had any this year.

Mr. EVANS. No, sir.

TRUST FUNDS

Mr. CANNON. Last, I wish you would review the system under which you accept funds from your customers to do work which, according to your justifications, will total $1,515,000 for 1961.

Mr. PEARL. Are you referring to the trust fund?

Mr. CANNON. Yes. I believe I will ask you to put that in the record.

Mr. PEARL. Very well.

(The information requested follows:)

Trust funds are accepted from our customers under the authority of 50 Statutes at Large 736. Such funds are used primarily for (1) installations desired by customers on the Administration's system but which the Administration does not furnish under its customer service policy, and (2) relocations of Administration transmission lines to accommodate construction of highways, canals, dams, etc.

Mr. CANNON. We will take a brief recess.

(Brief recess.)

MONDAY, MARCH 7, 1960.

SOUTHEASTERN POWER ADMINISTRATION

WITNESSES

C. W. LEAVY, ADMINISTRATOR
T. H. WIGGLESWORTH, CHIEF, DIVISION OF POWER OPERATIONS

OPERATION AND MAINTENANCE

Object classification

		1959 actual	1960 estimate	1961 estimate
	Total number of permanent positions	36	35	35
	Average number of all employees	34	34	34
	Number of employees at end of year	33	35	35
	Average GS grade and salary	7.9 $6,593	8.0 $6,632	7.9 $6,634
01	Personal services:			
	Permanent positions	$217,441	$221,500	$221,500
	Positions other than permanent		500	500
	Other personal services	826	1,000	1,000
	Total personal services	218,267	223,000	223,000
02	Travel	5,819	7,000	7,000
03	Transportation of things	35		
04	Communication services	4,101	5,000	5,000
06	Printing and reproduction	393	500	500
07	Other contractual services	2,112,800	2,685,625	2,795,000
08	Supplies and materials	2,038	2,500	2,500
09	Equipment	1,911	2,500	2,500
11	Grants, subsidies, and contributions	14,129	14,500	14,500
15	Taxes and assessments	10		
	Total obligations	2,359,503	2,940,625	3,050,000

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. System operation and maintenance	$73,353	$81,000	$80,000
2. Purchase of energy and wheeling charges	2,107,128	2,679,625	2,789,000
3. Power contracts and rates	104,757	96,000	96,000
4. General administration	81,428	85,000	85,000
Total program costs [1]	2,366,666	2,941,625	3,050,000
5. Relation of costs to obligations: Costs financed from obligations of other years, net (−)	−7,163	−1,000	
Total program (obligations)	2,359,503	2,940,625	3,050,000
Financing:			
Advances and reimbursements from non-Federal sources	−1,959,240	−2,224,000	−2,250,000
Unobligated balance no longer available	334,737		
Appropriation (new obligational authority)	735,000	716,625	800,000

[1] Includes capital outlay as follows: June 30, 1959, $10,995; 1960, $3,500; 1961, $2,500.

NOTE.—Reimbursements from non-Federal sources result from sale of power and are applied against charges for purchase of energy and wheeling by customers of the Administration.

Mr. CANNON. We will now take up the estimates for the Southeastern Power Administration.

You are requesting $800,000 for 1961.

JUSTIFICATION OF THE ESTIMATE

We will insert the justifications at this point.

(The pages referred to follow:)

Operation and maintenance

Appropriation Act, 1960	$716,625
Amount available, 1960	716,625
Decreases (subtotal)	716,625
Increases	83,375
Budget estimate, 1961	800,000

Analysis by activities

	Amount available, 1960	Decreases	Subtotal	Estimate, 1961	Increases
1. System operation and maintenance	$80,000		$80,000	$80,000	
2. Purchase of energy and wheeling charges	455,625		455,625	539,000	$83,375
3. Power contracts and rates	96,000		96,000	96,000	
4. General administration	85,000		85,000	85,000	
Total	716,625		716,625	800,000	83,375

GENERAL STATEMENT

Statutory authority and agency responsibilities

Section 5 of the Flood Control Act of 1944 makes the Secretary of the Interior responsible for marketing the power and energy generated at all reservoir projects under control of the Corps of Engineers, Department of the Army. In March of 1950 the Secretary established the Southeastern Power Administration to carry out this responsibility in a 10-State area consisting of West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, and Kentucky.

Broad objectives

The agency's overall, continuing objectives are defined by section 5. Under its terms the agency is required to "transmit and dispose" of power and energy "in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles." It provides for the agency's rate schedules "to become effective upon confirmation and approval by the Federal Power Commission" and further provides that "rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the project) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years." It requires the agency to give "preference in the sale of such power and energy" to public bodies and cooperatives. Accordingly, the agency's budget year objectives may be defined in broad terms to consist of those accomplishments appropriate to the circumstances of the budget year that carry out the provisions of section 5.

January 1960 status of generating capacity and marketing arrangements

	Kilowatts operating at January of current year	Kilowatts under construction for operation in—			Total
		Current year	Fiscal year 1962	Fiscal year 1963 or later	
1. Wolf Creek	270,000				270,000
2. Center Hill	135,000				135,000
3. Dale Hollow	54,600				54,600
4. Allatoona	74,000				74,000
5. Philpott	14,000				14,000
6. John H. Kerr	204,000				204,000
7. Clark Hill	280,000				280,000
8. Jim Woodruff	30,000				30,000
9. Buford	86,000				86,000
10. Old Hickory	100,000				100,000
11. Cheatham	12,000	24,000			36,000
12. Hartwell			66,000	264,000	330,000
13. Walter F. George				130,000	130,000
14. Barkley				130,000	130,000
Total	1,259,600	24,000	66,000	524,000	1,873,600

The power now generated at the projects in operation is being sold under 134 long-term contracts and 2 short-term interim agreements.

The entire output of the Wolf Creek, Center Hill, and Dale Hollow projects is being sold to the Tennessee Valley Authority under a long-term contract and the entire output of the Old Hickory and Cheatham projects is also being sold to the Authority under another long-term contract.

Two-thirds of the output of the John H. Kerr project is being sold under long-term contracts to the Virginia Electric & Power Co. and to 17 rural electric cooperatives in Virginia and North Carolina. The remaining one-third is being sold under long-term contracts to the Carolina Power & Light Co. and to 15 rural electric cooperatives and 1 municipality in North Carolina. The output of the Philpott project is being sold to the Appalachian Electric Power Co. under a short-term interim agreement. Negotiations with Virginia Electric & Power Co. and cooperatives in the company's service area for the long-term sale of the output of this project are at an advanced stage.

Clark Hill project power allocated to South Carolina is being sold to the South Carolina Public Service Authority and Greenwood County Electric Power Commission under long-term contracts and to the South Carolina Electric & Gas Co. under a short-term "when, as, and if" available contract. Clark Hill power allocated to Georgia and the output of the Allatoona and Buford projects is being sold under long-term contracts to the Georgia Power Co. and to 39 rural electric cooperatives and 47 municipalities in Georgia. The contract with Georgia Power Co. provides for the operation of the three projects on an integrated basis.

Power from the Jim Woodruff project is being sold under long-term contracts to four cooperatives and to two municipalities in Florida located in the service area of the Florida Power Corp. It is expected that all dependable capacity available at the project will be sold to preferred agencies. Power is transmitted

to preferred agencies through a wheeling contract with Florida Power Corp. which also provides for the sale of surplus energy to Florida Power Corp. and for the sale by Florida Power Corp. to the Government of firming energy and of capacity to meet the Government's commitments where not available from Jim Woodruff project or from other Federal projects. Under a long-term transmission agreement with Georgia Power Co. the Government is able to transmit 20,000 kilowatts to support the Jim Woodruff project from the Allatoona, Buford, or Clark Hill projects and to transmit energy from Jim Woodruff to the other three named projects to increase and further insure dependable capacity at those projects.

Funds required for appropriation

The agency's appropriation request consists entirely of operation and maintenance funds in the amount of $800,000. The funds are distributed among four activities; namely, system operation and maintenance, power contracts and rates, general administration, and purchase of energy and wheeling charges. Purchase of energy and wheeling charges is estimated to require $539,000. The remaining $261,000 is required for actual operation of the agency and provides for a continuation of the agency's working force at the current year level.

Status of revenues

Last year's actual revenues and the revenues which are estimated for the current year and the budget year are as follows:

Projects	Fiscal year 1959 (actual)	Fiscal year 1960 (estimated)	Fiscal year 1961 (estimated)
Wolf Creek Center Hill Dale Hollow	$1,710,000.00	$3,950,000	$3,950,000
Old Hickory Cheatham	1,622,288.00	2,030,000	2,400,000
Allatoona Buford	2,430,210.18	2,642,830	2,642,800
Clark Hill	3,619,027.25	4,339,900	3,923,900
Jim Woodruff	1,335,274.66	1,382,800	1,435,100
Philpott	223,836.45	217,100	217,100
John H. Kerr	3,923,227.33	4,472,320	4,537,120
Total	14,863,863.87	19,034,950	19,106,020

JUSTIFICATION

System operation and maintenance, $80,000

The amount requested for this activity for the budget year is the same as the amount available for the activity for the current year.

The activity is carried out to provide schedules for the generation of power, supervision of power deliveries as required by contractual arrangements, and determination of methods of coordinating operation of present and proposed generating plants to obtain maximum utilization of resources.

Constituent tasks of the activity enumerated below are accomplished continuously in every year. Their scope will increase somewhat in the budget year as a consequence of operational and power disposal arrangements under negotiation during the budget year.

1. *Studies of project operations, long range.*—Studies are made for the purpose of determining the amounts of power and energy available for sale, and the operations required in obtaining the maximum amounts of such power and energy. They involve consideration of the characteristics of the project, historic streamflows, effects of upstream developments, requirements for downstream riverflows, and characteristics of the load to be served. Prior to the start of negotiations for sale of power from the project, an initial study is made based on anticipated upstream development at the time the project is to be completed, anticipated requirements for downstream riverflows, and estimated characteristics of the load to be served. As negotiations progress and additional information is obtained as to the characteristics of the load to be served, revised studies are made to take these into account. Many such studies may be required during the negotiation of a single major contract. After the completion of the contract, operating experience and changes in upstream river development and requirements for downstream riverflows (or proposals for such upstream development or change in riverflows) require additional studies to take into account revised factors.

2. *Studies of integrated project operations.*—Studies of integrated project operations are project operation studies of two or more projects to determine whether the operation of those projects should be integrated to result in a greater output from the combined operation than can be obtained from the operation of the projects individually. In addition, it involves the study of the methods of accomplishing the integrated operation through existing or potential electrical interconnections of the projects.

3. *Current determinations of power and energy available.*—In connection with the projects which are in operation it is necessary to make determinations of the energy available from time to time (normally at intervals of 1 week) to control the current operations of the projects. These determinations are based on rule curves and other criteria developed by the project operation and integration studies previously discussed and current streamflow conditions and forecasts of streamflow conditions. This is a continuing responsibility which is affected by the complexity of the arrangements for marketing of the power, such as whether the projects are operated independently or integrated.

4. *Scheduling, storage and release of water, and delivery of power and coordination of project operations with other projects and with the operations of utilities receiving power from the projects.*—The basis for this activity is the information developed by the long-range and current studies previously discussed. It involves telephone contacts with the operators of the various utilities and the various projects and with water control engineers in the various Corps of Engineers district and division offices to advise the utilities of the power available; to arrange for schedules of deliveries; to arrange for receipts of power from the utilities to be stored in Government reservoirs; to arrange with the project operators for delivery and receipt of the power in accordance with the schedules agreed on with the utility operators and with the water-control engineers to assure that releases for power are not inconsistent with the requirement for releases for other functions of the project such as navigation and flood control. Arrangements made by telephone are confirmed in writing and in some more difficult situations personal conferences are required.

5. *Administration of contractual operating requirements.*—This involves such activities as making arrangements with the customers and plant operators for taking equipment out of service for maintenance and inspection, classifying and recording power and energy deliveries in accordance with contracts and other commitments, and making arrangements for proper voltage levels and other conditions on the systems of the customers in order to provide good service to all customers. This is a continuing activity, the volume of which is variable but which tends to increase with an increase in the number of agencies receiving power at the project.

6. *Meter testing and maintenance.*—In order that the power and energy delivered to the customers may be accurately measured it is necessary to test all meters used in measuring deliveries of power and energy at intervals not greater than 1 year. It is necessary that a representative of the agency be present at the meter test and arrangements must be made with the corps for performing individual tests and with the customer involved so that it may be represented by a witness at the test. In connection with the meters used in measuring deliveries from the utility systems to customers of the Government, where tests are performed by the utility, the Administration receives notification of such tests and makes arrangement for the affected Government customer to be represented if he desires.

7. *Reporting.*—The Administration is required to submit to the Federal Power Commission an annual report on FPC Form No. 12. The Administration also participates in reporting to the Edison Electric Institute on the power operations in the southeastern United States. Complete annual reports and abbreviated midyear reports are required for this purpose.

Purchase of energy and wheeling charges, $539,000

The amount requested for this activity for the budget year is an increase of $83,375 over the amount available for the activity for the current year. The increase is to provide (unlike the appropriation for the current year) for the requirements in the most adverse year that may be anticipated and to provide for additional costs on contracts now under negotiation.

Funds appropriated for this activity are used only to pay amounts charged the Government under contractual arrangements for (1) delivery of power over non-Federal systems to load centers of preferred agencies for the account of the Government and (2) purchase by the Government of energy to firm up federally generated power to the load factor required by preferred agencies, of energy to prevent excessive drawdown of reservoirs, and of capacity required to meet com-

mitments from the Jim Woodruff project under certain water conditions. The budget year appropriation requested for the activity is required solely to meet budget year obligations under existing contracts with Virginia Electric & Power Co. and Florida Power Corp.

During the budget year, power will be wheeled to 17 preferred agencies at approximately 94 points of wholesale delivery under the Virginia Electric & Power Co. contract, to 16 preferred agencies at approximately 77 points of wholesale delivery under the Carolina Power & Light Co. contract, to 86 preferred agencies at approximately 292 wholesale points of delivery under the Georgia Power Co. contract, and to 6 preferred agencies at 19 points of delivery under the Florida Power Corp. contract. A transmission contract with Georgia Power Co. provides for the transfer of power for the account of the Government between Jim Woodruff project and the Allatoona, Buford, and Clark Hill projects.

Under the existing contracts with Virginia Electric & Power Co. and Florida Power Corp. the Government purchases firming energy where necessary in order to supply its customers at their load factor. Under the arrangements with Carolina Power & Light Co. and Georgia Power Co. such energy is sold directly by the companies to preferred agencies. The contract with Florida Power Corp. also provides for the purchase of capacity needed to supply the Government's commitments when capacity, in excess of the 20,000 kilowatts which can be transferred under the Georgia Power Co. transmission agreement, is required.

The appropriation for the current year and the request for the budget year are based upon the payment on a monthly basis from appropriated funds only of the amount due each company for wheeling and firming over and above any amount due the Government from that company for the same month. Such a netting of bills substantially reduces the required use of appropriated funds.

Under this procedure no appropriated funds will be required for payments under the contracts with Carolina Power & Light Co. and Georgia Power Co. since, under any recorded water condition, the amount charged during any month by the Government for power sold either company will exceed the amount charged against the Government by that company for payment of wheeling fees.

Under certain water conditions there will be months in which a net balance exists against the Government under the contracts with Virginia Electric & Power Co. and Florida Power Corp. It is for the payment of these adverse net balances that funds for this activity are requested.

The estimated requirement for fiscal year 1961 under the most adverse conditions that may be reasonably anticipated is $539,000. This is based upon the requirements which would have occurred in the year 1931, which year results in the highest cost under the two contracts for any year as to which water records for the projects involved are available. As indicated on the tabulation which follows, in that year the payments which would have been required to Virginia Electric & Power Co. would have been $484,409 and the payments which would have been required to Florida Power Corp. would have amounted to $54,200, or a total of $538,609. While the conditions of some of the other water years of record would require greater payments to Florida Power Corp., the amount of this increase for those particular years would in all cases be less than the amount of the decrease required in payments to Virginia Electric & Power Co.

The request for funds is based upon the worst predictable situation since it would not be possible to operate on the basis of an appropriation for only the average amount necessary under the net-billing procedure. This is because an appropriation of only an average amount could be exhausted very quickly in a year of higher than average cost without permitting time to secure a supplemental appropriation, particularly if higher than average costs occurred early in the fiscal year when Congress was not in session.

The estimate makes no specific provision for payment for purchase of capacity from Florida Power Corp. in emergencies. Such payments would not occur unless the interconnections of that company with the Southern Company System were lost in excess of 1 hour at a time when a unit or units were out at the Jim Woodruff project. It is not feasible to evaluate the risks of this occurrence or the amount of payments which might be involved. The estimate also does not specifically provide funds for reimbursement to the Georgia Power Co. for additional costs incurred when the company supplies additional deficiency energy to preferred customers in emergencies or when the Government reduces deliveries to the company below the minimum amounts specified in the contract. It is not feasible to evaluate the likelihood of this occurrence or the amount of payments which might be involved. Aside from the foregoing occurrences or a major change in water patterns an appropriation of $539,000 would be sufficient under all reasonably predictable circumstances.

Estimated payments in fiscal year 1961 under netting of bills procedure

[Maximum coincidental cost year, 1931]

TRANSACTIONS WITH VIRGINIA ELECTRIC & POWER CO.

	VEPCO owes SEPA	SEPA owes VEPCO	Net payment by VEPCO	Net payment by SEPA
July	$95,280	$147,164		$51,884
August	102,763	137,773		35,010
September	99,219	125,641		26,422
October	90,613	140,593		49,980
November	89,818	133,987		44,169
December	94,970	140,275		45,305
January	96,004	133,320		37,316
February	90,809	127,503		36,694
March	92,169	135,061		42,892
April	90,330	131,180		40,850
May	95,292	131,907		36,615
June	93,143	130,415		37,272
Total	1,130,410	1,614,819		484,409

TRANSACTIONS WITH FLORIDA POWER CORP.

	Florida Power owes SEPA	SEPA owes Florida Power	Net payment by Florida Power	Net payment by SEPA
July	$10,920	$16,743		$5,823
August	14,550	19,137		4,587
September	6,330	19,653		13,323
October	21,780	16,663	$5,117	
November	17,415	47,671		30,256
December	28,605	16,913	11,692	
January	38,850	14,980	23,870	
February	37,215	16,736	20,479	
March	34,680	15,440	19,240	
April	39,810	15,883	23,927	
May	40,440	14,210	26,230	
June	15,000	15,211		211
Total	305,595	229,240	130,555	54,200

TRANSACTIONS WITH CAROLINA POWER & LIGHT CO.

	Carolina Power & Light owes SEPA	SEPA owes Carolina Power & Light	Net payment by Carolina Power & Light	Net payment by SEPA
July	$26,940	$8,250	$18,690	
August	26,940	9,075	17,865	
September	26,940	9,075	17,865	
October	26,940	8,332	18,608	
November	26,940	8,168	18,772	
December	26,940	8,745	18,195	
January	26,940	8,085	18,855	
February	26,940	7,178	19,762	
March	26,940	7,425	19,515	
April	26,940	6,765	20,175	
May	26,960	8,002	18,938	
June	26,940	8,250	18,690	
Total	323,280	97,350	225,930	

Estimated payments in fiscal year 1961 under netting of bills procedure—Continued

TRANSACTIONS WITH GEORGIA POWER CO.

	Georgia Power owes SEPA	SEPA owes Georgia Power	Net payment by Georgia Power	Net payment by SEPA
July	$156,373	$70,555	$85,818	
August	156,373	70,555	85,818	
September	151,798	70,555	81,243	
October	96,898	70,555	26,343	
November	96,898	70,555	26,343	
December	124,348	70,555	53,793	
January	124,348	70,555	53,793	
February	96,898	70,555	26,343	
March	96,898	70,555	26,343	
April	96,898	70,555	26,343	
May	151,798	70,555	81,243	
June	156,373	70,555	85,818	
Total	1,505,901	846,660	659,241	

Power contracts and rates, $96,000

The amount requested for this activity for the budget year is the same as that available for the activity for the current year.

The activity is conducted to prepare for, accomplish, maintain, and review the results of power disposal arrangements. In its conduct the agency establishes and secures approval of rates, determines purchasers and delivery measures, negotiates and administers appropriate contracts, and conducts continuous review of results.

The tasks making up the activity are continuing in nature. Their number is subject to some variation from year to year according to circumstances, as is the placement of emphasis among them. Both their number and the amount of work entailed in their accomplishment will be greater in the budget year than in the current year.

1. *Appraisal of proposed hydroelectric developments.*—To establish financial feasibility of hydroelectric projects proposed for construction, joint appraisal is conducted at the planning stage by the field agencies of the Corps of Engineers, the Department of the Interior, and the Federal Power Commission. The appraisals employ estimated costs only, and have for a principal requirement on Southeastern the determination of whether prospective revenues are adequate to repay estimated allocations of cost to power. The determination necessitates Southeastern's conduct of preliminary cost allocation, rate and repayment studies, the results of which are reviewed at meetings held in regular series by the three field agencies, and frequently involve questions of project design and operation.

2. *Determination of cost allocations.*—Agreement on cost allocation was reached among the Department of the Interior, Corps of Engineers, and Federal Power Commission during fiscal year 1954. The agreement provides criteria for a joint, field level determination of costs, cost allocation methods, and amounts for allocation. Field agency determinations under the criteria were begun in 1954, are in progress during the current year and will be conducted during the budget year. Results of the three agencies' respective studies are reviewed and reconciled at meetings held in a regular series. Southeastern's role in the joint determinations requires accomplishment of cost allocation, rate and repayment studies that test allocations to power against obtainable power revenue. This task may involve single projects or the much more complex situation of a combination of projects in a single basin.

3. *Rate establishment and presentation for approval.*—Rate schedules are required to be drawn so as to produce revenue sufficient to pay the expenses of operation, maintenance, interest, and amortization of the investment in the projects and their related power facilities. Establishment and presentation of rates for confirmation and approval by the Federal Power Commission require the accomplishment of detailed cost allocation, rate and repayment studies based on varying assumptions that reflect the effect of proposed rates and take into account preliminary and final cost allocations, proposed and actual contract arrangements for the sale of power, and anticipated and actual project operation and maintenance costs.

4. *Determination that revenue is adequate to repay power investment.*—Repayment schedules are prepared and maintained for each project and for combinations of

projects in one basin or sold under one contract in the course of the agency's work to appraise proposed hydroelectric developments, determine cost allocations, and present rates for approval. They are prepared at the outset on the basis of estimated project costs, and are then adjusted as actual costs are reported during construction. Once the project has been completed they are adjusted periodically to reflect actual revenues and actual costs, including operation and maintenance expenses and interest and amortization. Following the approval of rates, repayment accounts are set up and maintained for each project. The accounts are maintained to insure that the revenue required to repay the project is actually materializing according to the repayment schedule.

5. *Investigation of the market.*—Disposal of the firm power, secondary energy, nondependable capacity and dump energy components of the projects' output requires both a comprehensive knowledge of the existing needs of the market and an accurate forecast of the market's future needs. Determinations of vendibility, by reason of the several uses to which they are put, must begin well in advance of the construction of projects and must thereafter undergo continuous refinement and revision to reflect changing conditions. Preliminary determinations are needed for use during the agency's participation in interagency appraisal of proposed hydroelectric developments. Exact knowledge of the existing and prospective size and character of each public body and cooperative load in the areas surrounding projects in operation and under construction is essential to an equitable disposition of power, since these agencies are by law given a preference in the sale of power and their combined requirements far exceed the power available for disposal. Accurate information on present and future load is required in determining the quantities and kinds of power available for sale at the project, in determining whether non-Federal facilities offered for the transmission of power are available on reasonable terms, in making estimates of power revenues for fiscal and other purposes, and in determining the funds needed in the coming year for the purchase of firming energy and the payment of wheeling fees. To obtain a proper return from nondependable capacity and dump energy available at the projects it is essential to have continuous knowledge of the load and generation conditions prevailing on the systems of the major utilities comprising the market for this product.

6. *Determinations of alternative transmission costs.*—It is the policy of the Department to build and operate transmission facilities to carry power to points of wholesale delivery within economic transmission distances unless other public or private agencies have or will provide the necessary facilities upon reasonable terms—the terms generally to be such that the federally produced power will be made available to purchasers at costs not higher than would result from the construction of transmission facilities by the Federal Government. Engineering and economic studies are required to develop data upon which appropriate action under the policy may be judged by the Department.

7. *Contract negotiation.*—Contracts are negotiated for the sale of power, the employment of non-Federal transmission facilities, and the purchase of firming energy. All three purposes may be served in one contract, as in the existing contract with the Virginia Electric & Power Co. for the wheeling, firming, and sale of Kerr project power. The larger number of contracts (for example, those with rural electric cooperatives) are for power sales only. The negotiations frequently raise complicated engineering and economic problems (particularly the negotiations with large utility systems) the resolution of which becomes for the time a major element in the workload of the agency as a whole.

8. *Administration of power sales contracts.*—Continuing service requirements begin with the initial delivery of power under each contract. Some are intermittent, such as the investigation of complaints, the negotiation of changes in the contract demand, and the establishment of new points of delivery. Others occur regularly in every month. In the latter category are power billing, collection of bill payments, and the maintenance of customer accounts. The billing routine comprises a major portion of the workload. Information recorded by meters is collected monthly and processed by calculation into data from which bills are rendered. The calculation involves determination of losses between points of delivery and points of metering, check of power usage against contract provisions to determine the application of penalties, and the development of appropriate constants and correction factors in order that the power quantities for which bills are rendered may properly reflect load diversity, divisions of energy between onpeak and offpeak periods, and the reactive requirements of the load. The extent of the contract administration workload in any year corresponds roughly to the number of contracts on hand.

9. *Reporting.*—Monthly and annual summaries of power marketing information are required for the orderly conduct of the activity. Periodic reports are required by the Federal Power Commission (FPC Form No. 1). Establishment of repayment accounting for the newly operating projects, the expanded marketing arrangements for administration, and other such factors, will increase the amount of work required in the preparation of reports, although the reports will not increase in number over the current year.

General Administration, $85,000

The amount requested for this activity for the budget year is the same as that available for the activity for the current year.

The activity is conducted to provide executive management for the agency and to supply the agency with supporting administrative and fiscal services. Its extent from year to year results from and is proportionate to the extent of the agency's other activities. It consists principally of the following tasks:

1. *Management.*—The agency's program is determined by secretarial criteria. Coordination of the agency's activities and their executive direction and control is secured by staff conference, written directives, and a systematic reviwe of transactions in progress. The effectiveness of procedures, methods, and routines is subjected to regular appraisal.

2. *Personnel.*—Actions are taken, records are maintained, and reports are forwarded to accomplish recruitment, separation from the service, job classification, promotion, performance rating, retirement, and the like, under procedures required by the Department, the Civil Service Commission, and the Congress.

3. *Procurement and office services.*—Materials, equipment, supplies, and services are purchased, records and reference materials are managed, mail is processed and handled, duplicating equipment is operated, motor vehicles and headquarters premises are maintained, staff transportation is secured, switchboard communication is operated, space is managed, and other work of a similar nature is performed to support the operation of the agency.

4. *Fiscal services.*—Accounts are established and maintained to record and control the expenditure of appropriated funds in accordance with the terms of their appropriation. Periodic and special reports on the status of accounts are prepared and forwarded as prescribed by the Department, the General Accounting Office, and others.

5. *Budget.*—In each year, program criteria established for the coming year are reflected into an estimate of appropriations required. Departmental review of the estimate is secured, and presentations for justification are made to the Bureau of the Budget and to the Congress in accordance with their respective procedures.

General Statement

Mr. Cannon. You are asking for an increase of $83,375. We will insert your statement in the record.

(The statement of Mr. Leavy follows:)

Summary Digest of Statement

Total appropriation request, $800,000, consisting entirely of funds for operation and maintenance.

Of total request, $261,000 is for agency operation. Activities consist of system operation and maintenance ($80,000), power contracts and rates ($96,000), and general administration ($85,000). Agency objective is to carry out greater responsibilities of budget year with no increase in working force. Budget year work essential to realization of benefits from long-term disposal arrangements.

Of total request, $539,000 is for wheeling and firming. Funds required solely to meet obligations under wheeling and firming contracts with Virginia Electric & Power Co. and Florida Power Corp.

Mr. Chairman and gentlemen of the committee, as you know, the Southeastern Power Administration was established by the Secretary of the Interior to carry out in a 10-State area of the southeast the power disposal responsibilities which are given him by section 5 of the Flood Control Act of 1944. The map attached to your copies of this statement shows the area and the hydroelectric projects with which the agency is concerned and the table which is the first attachment to the statement shows the status of the generating capacity at the projects for

which Southeastern is marketing agent. You will note that there are 11 projects now operating, and that capacity installations have been completed at 10 of them. Approximately 1¼ million kilowatts of capacity are installed.

The power now generated at the projects in operation is being sold under 134 long-term contracts and 2 short-term interim agreements.

The entire output of the Wolf Creek, Center Hill, and Dale Hollow projects is being sold to the Tennessee Valley Authority under a long-term contract and the entire output of the Old Hickory and Cheatham projects is also being sold to the Authority under another long-term contract.

Two-thirds of the output of the John H. Kerr project is being sold under long-term contracts to the Virginia Electric & Power Co. and to 17 rural electric cooperatives in Virginia and North Carolina. The remaining one-third is being sold under long-term contracts to the Carolina Power & Light Co. and to 15 rural electric cooperatives and 1 municipality in North Carolina. The output of the Philpott project is being sold to the Appalachian Power Co. under a short-term interim agreement. Negotiations with Virginia Electric & Power Co. and cooperatives in the company's service area for the long-term sale of the output of this project are at an advanced stage.

Clark Hill project power allocated to South Carolina is being sold to the South Carolina Public Service Authority and Greenwood County Electric Power Commission under long-term contracts and to the South Carolina Electric & Gas Co. under a short-term "when, as and if" available contract. Clark Hill power allocated to Georgia and the output of the Allatoona and Buford projects is being sold under long-term contracts to the Georgia Power Co. and to 39 rural electric cooperatives and 47 municipalities in Georgia. The contract with Georgia Power Co. provides for the operation of the three projects on an integrated basis.

Power from the Jim Woodruff project is being sold under long-term contracts to four cooperatives and to 2 municipalities in Florida located in the service area of the Florida Power Corp. It is expected that all dependable capacity available at the project will be sold to preferred agencies. Power is transmitted to preferred agencies through a wheeling contract with Florida Power Corp. which also provides for the sale of surplus energy to Florida Power Corp. and for the sale by Florida Power Corp. to the Government of firming energy from Jim Woodruff project or from other Federal projects. Under a long-term transmission agreement with Georgia Power Co. the Government is able to transmit 20,000 kilowatts of capacity to support the Jim Woodruff project from the Allatoona, Buford, and Clark Hill projects and to transmit energy from Jim Woodruff to the other three named projects to increase and further insure dependable capacity at those projects.

The status of revenues is set forth in the table which is the second attachment to the statement. You will note that last year's actual revenues reached a total of almost $16 million. This revenue was less than normal due to poorer than average water conditions. We estimate that the total of this year's earned revenues will be approximately $19 million, and that the total revenue earned for the budget year will be approximately the same amount. The amounts deposited in the Treasury are somewhat less than the totals shown in the tabulation, since collections are reduced by the amount of wheeling and firming costs offset against earned revenues.

An appropriation of $800,000, consisting entirely of operation and maintenance funds, is requested for the activities involved in marketing power. The activities are system operation and maintenance, purchase of energy and wheeling charges, power contracts and rates and general administration. The sum of $539,000 is requested for purchase of energy and wheeling charges, to be devoted exclusively to the purchases of firming energy and the payment of wheeling fees under existing contracts with Virginia Electric & Power Co. and Florida Power Corp. The remaining $261,000 of the appropriation request will provide for the system operation and maintenance, power contracts and rates, and general administration activities comprising the direct operation and maintenance of the agency headquarters. Of this amount $80,000 is requested for system operation and maintenance, $96,000 for power contracts and rates, and $85,000 for general administration.

You will note that the request for funds for purchase of energy and wheeling charges amounts to $539,000 as compared to $474,000 for the current year. The increase is to provide (unlike the appropriation for the current year) for

the requirements in the most adverse year that may be anticipated and to provide for additional costs on contracts now under negotiation. The appropriation for the current fiscal year and the request for the budget year are based upon the payment on a monthly basis from appropriated funds only of the amount due each company for wheeling and firming over and above any amount due the Government from that company for the same month.

Such a netting of bills substantially reduces the required use of appropriated funds. Under this procedure no appropriated funds will be required for payments under the contracts with Carolina Power & Light Co. and Georgia Power Co. since, under any recorded water condition, the amount charged during any month by the Government for power sold either company will exceed the amount charged against the Government by that company for payment of wheeling fees. Under certain water conditions there will be months in which a net balance exists against the Government under the contracts with Virginia Electric & Power Co. and Florida Power Corp. It is for the payment of these adverse net balances that funds for this activity are requested.

During the budget year power will be wheeled to 17 preferred agencies at approximately 94 points of wholesale delivery under the Virginia Electric & Power Co. contract, to 16 preferred agencies at approximately 77 points of wholesale delivery under the Carolina Power & Light Co. contract, to 86 preferred agencies at approximately 292 wholesale points of delivery under the Georgia Power Co. contract, and to 6 preferred agencies at 19 points of delivery under the Florida Power Corp. contract.

The budget year will involve an increase in work over the current year. No corresponding increase in personnel is contemplated by the requested funds for the direct operation and maintenance of the agency headquarters. Rather, the $261,000 requested for this purpose provides for a continuation of the agency's working force at its present level.

Each of the activities to be conducted consists of a set of related tasks. These are enumerated and examined at length in the justification which the committee already has. A summation and highlighting of them here may provide some further illustration of the extent of the agency's budget year work.

The system operation and maintenance activity is carried out to provide schedules for the generation of power, supervision of power deliveries as required by contractural arrangements, and determination of methods of coordinating operation of present and proposed generating plants to obtain maximum utilization of resources. Their scope will increase somewhat in the budget year as a consequence of operational and power disposal arrangements secured in the current year.

The power contracts and rates activity is conducted to prepare for, accomplish, maintain and review the reults of power disposal arrangements. In its conduct the agency establishes and secures approval of rates, determines purchasers and delivery measures, negotiates and administers appropriate contracts, and conducts continuous review of results. Like those of system operation and maintenance, these tasks are continuing in nature. The amount of work entailed in their accomplishment will be greater in the budget year than in the current year.

The general administration activity is conducted to provide executive management for the agency and to supply the agency with supporting administrative and fiscal services. The activity's extent from year to year of course results from and its proportionate to the extent of the agency's other activities.

Funds appropriated for purchase of energy and wheeling charges are used only to pay amounts charged the Government under contractual arrangements for (1) delivery of power over non-Federal systems to load centers of preferred agencies for the account of the Government and (2) purchase by the Government of energy to firm up federally generated power to the load factor required by preferred agencies, of energy to prevent excessive drawdown of reservoirs, and of capacity required to meet commitments from the Jim Woodruff project under certain water conditions. As I mentioned earlier, the appropriation requested for the activity is required solely to meet budget year obligations under the existing contracts with Virginia Electric & Power Co. and the Florida Power Corp.

The request for funds is based upon the worst predictable situation since it would not be possible to operate on the basis of an appropriation for only the average amount necessary under the net-billing procedure. This is because an appropriation of only an average amount could be exhausted very quickly in a year of higher than average cost without permitting time to secure a supple-

mental appropriation, particularly if higher than average costs occurred early in the fiscal year when Congress was not in session.

Current year status of generating capacity—January 1960 status of generating capacity and marketing arrangements

	Kilowatts operating at January of current year	Kilowatts under construction for operation in—			Total
		Current year	Fiscal year 1962	Fiscal year 1963 or later	
Wolf Creek	270,000				270,000
Center Hill	135,000				135,000
Dale Hollow	54,600				54,600
Allatoona	74,000				74,000
Philpott	14,000				14,000
John H. Kerr	204,000				204,000
Clark Hill	280,000				280,000
Jim Woodruff	30,000				30,000
Buford	86,000				86,000
Old Hickory	100,000				100,000
Cheatham	12,000	24,000			36,000
Hartwell			66,000	264,000	330,000
Walter F. George				130,000	130,000
Barkley				130,000	130,000
Total	1,259,600	24,000	66,000	524,000	1,873,600

Status of revenues

Projects	Fiscal year 1959 (actual)	Fiscal year 1960 (estimated)	Fiscal year 1961 (estimated)
Wolf Creek Center Hill Dale Hollow	$1,710,000.00	$3,950,000	$3,950,000
Old Hickory Cheatham	1,622,288.00	2,030,000	2,400,000
Allatoona Buford	2,430,210.18	2,642,830	2,642,800
Clark Hill	3,619,627.25	4,339,900	3,923,900
Jim Woodruff	1,335,274.66	1,382,800	1,435,100
Philpott	223,836.45	217,100	217,100
John H. Kerr	3,923,227.33	4,472,320	4,537,120
Total	14,863,863.87	19,034,950	19,106,020

NET BILLING PROCEDURE

Mr. CANNON. Why do you program your power purchases on the basis of the most adverse water year rather than the most advantageous water year? I should think the criterion here should be the average water year.

Mr. LEAVY. The change was made when we went to the net billing procedure. Previously, when we were getting appropriations of several millions of dollars to pay the entire wheeling and firming cost, we did get appropriations on the basis of the average water year since this basis did reduce the amount of the request quite materially.

It did mean in several instances that we were required to come in for supplemental appropriations.

When we went to the net billing procedure, which we are now following, the amount of the request under an adverse condition was much less than it had been previously on an average——

Mr. CANNON. How long have you been following the net billing procedure?

Mr. LEAVY. This is the second fiscal year.

Mr. CANNON. Do you find it satisfactory?

Mr. LEAVY. Yes, indeed.

Mr. CANNON. You may proceed.

Mr. LEAVY. The change from an adverse to an average basis under our previous system amounted to a reduction in the appropriation of upward of $1 million, several millions of dollars.

A change in this net billing procedure would amount—I do not know precisely what it would be—to a matter of possibly $200,000. It is a relatively small amount. That is one reason we have gone to the adverse water year, because the reduction to do otherwise would not be great, and by going to the adverse year we eliminate the possibility of having to seek supplemental appropriations.

One other reason——

BUDGETARY RESERVE

Mr. CANNON. But from year to year you do effect an appreciable saving.

Mr. LEAVY. In many years we do not spend the amount that is appropriated for that purpose.

Last year we turned back some $350,000. This year we again have favorable conditions and we are presently reapportioning our funds and placing $250,000 in a budgetary reserve.

What we are fearful of is this: Under the net billing procedure, if we went to an average year, we might not have enough money to last us far enough through the year, to allow time to secure a supplemental appropriation.

If we had an adverse year under the net billing procedure we could use our funds very rapidly.

Mr. CANNON. You are putting in reserve a quarter of a million dollars?

Mr. LEAVY. Yes, sir.

ESTIMATE IF BASED ON AVERAGE YEAR

Mr. CANNON. How much would your budget request be reduced if projections were on the average year?

Mr. LEAVY. I cannot answer that offhand.

Mr. CANNON. Approximately.

Mr. LEAVY. I am guessing at this point.

Mr. CANNON. Supply it.

(The information requested follows:)

The average annual payment by Southeastern Power Administration for purchase of energy and wheeling charges under the net billing procedure is estimated to be approximately $300,000. Under adverse water conditions, this amount could be exhausted in the first half of the fiscal year when Congress was not in session. The following tabulation shows the cumulative maximum payments at the end of each quarter of the fiscal year under the most adverse water conditions for the quarter or quarters covered:

First quarter	$176,000
Second quarter	344,000
Third quarter	443,000
Fourth quarter	539,000

SALE OF PHILPOTT POWER

Mr. CANNON. Last year you said you expected to have a long-term sales contract for the sale of Philpott power by last summer, but here it is almost the summer of 1960 and you still do not have it.

What is the difficulty encountered there?

Mr. LEAVY. The difficulty has been in completing our arrangements with Virginia Electric & Power Co. When we were here last year we spoke rather optimistically about the situation because we had narrowed our negotiations down to only a few areas of disagreement, and in those areas the amounts involved were relatively small.

Mr. CANNON. Is your difficulty due merely to ordinary routine or to recalcitrance on the part of those with whom you are dealing?

Mr. LEAVY. I feel it is not due to recalcitrance. We are told that the people with whom we are dealing with the company have been heavily involved in certain other matters, licenses and certain other company matters, and they tell us it has been very difficult for them to give attention to our matters.

We have reached agreement with the company at last and what we are now waiting for is for the company to conclude their interconnection agreement with the Appalachian Power Co. which is necessary in order to get this power into the Vepco system.

There again they tell us that they feel that that can be completed in time to start operating next summer. That is what we told you last year, I realize.

Mr. CANNON. You expect to complete the entire matter satisfactorily by this coming summer?

Mr. LEAVY. We hope to. That is our intention.

TVA CONTRACT

Mr. CANNON. We will put in the record your letter of May 5, 1959, regarding the Federal Power Commission action on your request for rate approval in the TVA contract. We will also insert other pertinent documents.

(The documents referred to follow:)

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., May 5, 1959.

Hon. CLARENCE CANNON,
Chairman, Committee on Appropriations,
House of Representatives,
Washington, D.C.

DEAR MR. CANNON: We are taking this means of informing the committee concerning a matter that has arisen in the marketing of power by this Department under section 5 of the Flood Control Act of 1944, and of the course that this Department is pursuing in reference thereto.

On May 20, 1958, the Federal Power Commission entered an order (copy attached as exhibit 1) disapproving the rates and charges contained in this Department's contract with the Tennessee Valley Authority, dated December 18, 1948, as amended. The contract covers the sale of the entire output of the Wolf Creek, Center Hill, and Dale Hollow projects to TVA. The contract is for an indefinite term but may be canceled on 10 years' notice, the cancellation to be effective not earlier than December 18, 1968. The Commission did not find that the rates and charges were not sufficient to recover all elements of costs required by section 5 of the Flood Control Act of 1944 as determined by the Secretary of the Interior; rather, it found the rates and charges unjustified, after having first substituted its judgment for that of the Secretary as to what portion

of the multiple-purpose projects' costs should be allocated to power and what rate of interest should be recovered on the Federal investment.

On December 18, 1948, after approximately 3 years of negotiations, the Secretary of the Interior concluded a long-term contract with TVA, a copy of which is attached hereto as exhibit 2. The records show that inextricably involved in this contractual undertaking were the following matters: The Corps of Engineers, the construction agency of the projects, had advised that construction of powerplants at Wolf Creek and Center Hill would not be resumed without a request by the Department of the Interior, the power marketing agency. This Department would not make such a request until the market was properly explored and a suitable outlet for the power was determined to be available through which the Secretary could accomplish his statutory responsibilities. TVA, the only entity in the area capable of absorbing the power, all factors considered, would not agree to purchase the power in the absence of certain knowledge respecting costs especially with respect to the method of determining capital costs allocated to power and, because Congress had not required TVA to recover interest on its own hydroelectric power investment with respect to the interest rate as an element of cost as required by section 5. The above was necessary for TVA to make proper comparisons between the cost of this power and costs from alternate sources (taking into consideration the extensive interconnection and transmission line expense necessary to utilize the power in its system) so that it might comply with the requirements of the TVA Act.

Acting pursuant to authority delegated him by section 5 of the Flood Control Act of 1944 and consistent with then existing policy and regulations, the Secretary determined that the law as to these projects could best be carried out by allocating to power the difference between the total estimated first cost (to be replaced by actual cost when known) for the multiple-purpose projects and that for the flood control only projects, that is the incremental cost of power, and by requiring an interest rate (2 percent) equivalent to the then current average rate on outstanding marketable obligations of the United States. The Secretary found additional support for his determinations respecting cost allocations in the legislative history of the projects, which is discussed in exhibit 3 attached hereto, and from executive pronouncements as contained in the President's budget message of January 3, 1947, and in communications from officials of the Department of the Treasury regarding the matter of interest, which is discussed in exhibit 4 attached hereto.

While no one desires to minimize the effects or responsibilities involved, it appears that no relevant or useful purpose would be served here to elaborate upon the sucessive events that delayed Interior's rate submission until 1955 or the Commission's issuance of its order until 1958. Suffice it to say the unavoidable delay in submitting the rates at the outset led to the conclusion on the part of Southeastern Power Administration that the submission should be made on the basis of actual costs rather than estimates and the actual cost data assembled in turn led Southeastern to the conclusion that the contract rate should be adjusted under the terms of the contract. In 1953 officials of the Department, faced with the problem of rate approval, reviewed the matter and considered it at great length. After further consultation and receipt of legal advice, an amendment of the contract with TVA was negotiated, a copy of which is attached as exhibit 2–A, which resulted in the substitution of actual capital costs where only estimates were previously available and in bringing charges for operation and maintenance of the facilities and marketing expenses in line with current costs, all as contemplated by the original agreement. The rates in the original contract, as amended, were then presented to the Commission with a request for confirmation and approval.

Our review of prior departmental action attempted to give full, yet proper, consideration to the many faceted problem. We recognized that the contractual power of the United States had been exercised by the official so empowered to exercise it, after lengthy negotiation. We were not unmindful of the comprehensive congressional purposes which were required to be carried out or of the rights, obligations, reliances and other chain reactions that the exercise of such contractual power entails. Our review recognized the importance to our system of government of the doctrine of giving finality to the administrative acts of responsible officials in the absence of a compelling showing of discriminatory or arbitrary and capricious action.

Our review revealed a considerable body of precedent and developed policy that has been formulated since the long-term sale of power from these projects, and while very valuable for then present and future considerations, it offered

no legitimate help in properly evaluating executive decisions made in prior years. More recent agreements between interested Federal agencies, methods of cost allocation developed and accepted in recent years, present thinking on the inclution of a particular rate of interest on the investment as an element of cost and revised policy guides including those by the Bureau of the Budget, these, while now contributing valuable assistance in current policy formulation could not have offered guidance either to contractors or the Secretary of the Interior prior to December 18, 1948, when the Secretary was faced with decisions which by their nature required a finality of determination.

Our review revealed that the first power sold from any Corps of Engineers' constructed project in the United States which received final authorization after the passage of section 5 of the Flood Control Act of 1944 and which was marketed pursuant to its terms was from one of the projects here in question. Because of this, our review included a look at the earlier history of the other but related parts of the Federal power program. As to the two pertinent matters of cost allocations and interest rate, what was adopted in other programs and under other laws prior to December 18, 1948, was given by us persuasive importance, but our review of the approaches thereunder, rather than offering single well-developed precedents, revealed quite the contrary or varied and different approaches.

Of importance was the fact that the flood-control-only projects (as originally authorized in the Flood Control Act of 1938) that were involved in the Secretary's allocations of cost were in and of themselves feasible in 1948 and remained so at the time of our review and remain so today. Of even greater significance is the undisputed fact that on the basis of the 1948 contract and the costs used by the Secretary of the Interior, the benefit-cost ratio on the three projects was better than 1 to 1 and this is also true of each of the purposes of the projects. The sale was therefore made on a basis which would preserve multipurpose feasibility.

While more recently developed policy, with which we agree, anticipates that normally the cost allocated to a particular purpose should be related to the benefits contributed by such purposes, we were unable to find any such requirement in law or policy prior to December 18, 1948. And, while present thinking considers appropriate an interest rate approximately equivalent to the long-term cost of money to the Government, we found neither well-defined policy nor precedent sufficient to render the Secretary's use of any interest rate equivalent to the average cost of money to the Government so unreasonable as to be contrary to law.

The decision to which we came after our review does not mean that present officials of the Department personally agree with what a prior Secretary did in 1948; nor that our judgment necessarily coincides with his; or that we or someone else in authority then or now would not have done differently. Properly viewed, however, these observations are immaterial.

To declare the rates and charges contrary to law in the face of the previously recited facts, the Commission was required to move to an extreme position. When the Commission indicated that it was itself giving serious consideration to this extreme position as urged by its staff, we felt it necessary in our last written communication to officially but tactfully suggest to the Commission that necessary recognition should be given to the judgment of the Secretary of the Interior.

While recent years have witnessed our cooperation in moving toward an accommodation of the interests of other involved agencies, the position of the Commission in disqualifying the judgment and the discretion used by the Secretary prior to December 18, 1948, in arriving at a cost-allocation basis and the interest rate used in this contract does not, in our view, find so demonstrable a base in section 5 of the Flood Control Act of 1944 as to justify our concluding that the Commission is authorized to substitute its judgment of desirable policy for that theretofore reached by the Secretary of the Interior.

In these circumstances, this Department will, as indeed we think it must, continue to abide by the terms of its contract.

Recent correspondence between the Southeastern Power Administration and TVA on the matter is attached as exhibit 5.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

EXHIBIT 1

UNITED STATES OF AMERICA, FEDERAL POWER COMMISSION

Before Commissioners: Jerome K. Kuykendall, Chairman; Seaborn L. Digby, Frederick Stueck, William R. Connole and Arthur Kline.

DOCKET NO. E-6645

IN THE MATTER OF UNITED STATES DEPARTMENT OF THE INTERIOR, SOUTHEASTERN POWER ADMINISTRATION

ORDER DISAPPROVING RATE SCHEDULES

(Issued May 20, 1958)

Pursuant to the Flood Control Act of 1944 (58 Stat. 887), the Assistant Secretary of the Interior (Secretary) on behalf of the Southeastern Power Administration (SEPA) on September 15, 1955, submitted for confirmation and approval, the rates and charges in a contract, as amended, with the Tennessee Valley Authority (TVA) for the sale of the power generated by the Wolf Creek, Dale Hollow, and Center Hill Projects (Cumberland Basin Projects).

SEPA is an agency of the United States established in the Department of the Interior to execute the purposes of the Flood Control Act of 1944 (Flood Control Act) with respect to the disposition of electric power and energy made available to the Secretary from the reservoir projects under the control of the Department of the Army (War Department) in the area of West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee and Kentucky. The Wolf Creek, Dale Hollow and Center Hill projects are multipurpose projects located in the Cumberland River basin in southern Kentucky and northern Tennessee, constructed and operated by the Army. The total installed capacity of the projects is 459,000 kilowatts and the estimated annual output is 1,345,000,000 kilowatt hours. The Secretary through SEPA sells the entire output of the projects to TVA pursuant to a contract executed December 8, 1948 and amended July 26, 1955. The contract, as amended, together with cost allocations and repayment studies was filed with the Commission by the Secretary on September 15, 1955, with a request that the Commission confirm and approve the rates and charges set forth in the contract. Additional information was filed by the Secretary on February 20, 1958. Several conferences were held between the staffs of the Department of the Interior and this Commission between the date of initial submission of the rates and the date of receipt of the additional information from the Secretary. These conferences were held for the purpose of exchange of views and brought forth data and information not included in the original submission.

The estimated annual payments to be received from TVA, based on rates and charges set forth in the amended contract, will average $3,950,000, which are intended to cover interest, amortization of the investment, and expenses for operation, maintenance and power marketing. In deriving the annual payments, the Secretary used an interest rate of 2 percent per annum and allocated to power only the incremental costs of power from the projects.

Section 5 of the Flood Control Act of 1944 provides that:

"Electric power and energy generated at reservoir projects under the control of the War Department and in the opinion of the Secretary of War not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission. Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. * * *"

In carrying out the Commission's function of confirming and approving rate schedules prepared by the Secretary, the Commission must determine that the rate schedules devised by the Secretary are based on an application of allocation methods, which when applied to the proposed operation will return the costs as contemplated by Congress.

The costs of Federal water resources development projects for the purpose of allocation of costs are usually classified into two major categories—incremental and joint costs. The incremental cost for each purpose is the difference between the cost of the multipurpose program or project and the cost of the program or project with that particular purpose omitted. Incremental costs include more than the direct or specific costs of physically identifiable services serving only one purpose, because they include all added costs of increased size of structures and changes in design for a particular purpose over that required for all other purposes. The joint cost is the difference between the cost of the multipurpose program or project as a whole and the total of the incremental costs of all program or project purposes.

The allocation of costs of Federal projects to particular purposes served should be consistent with the degree to which Congress has clearly accepted Federal responsibility for each particular purpose. The incremental method of cost allocation allocates the incremental costs to their respective purposes and the total joint cost to one basic purpose which is considered the principal or basic function of the project.

The incremental method of cost allocation is appropriate where one or more features such as power are added to a project subsequent to the original or initial authorization and completion of construction of its primary features, without a congressional reauthorization of the project incorporating such added features having intervened. On the other hand, if projects based upon multiple-purpose planning, as in this instance, are authorized for flood control, but before completion of these flood control features electric power-generating facilities are added pursuant to congressional enactments carrying appropriations expressly for the construction of such power features, then in addition to the incremental costs an assigned amount of the joint costs should be included in the costs allocated to power.

In determining whether the Secretary's use of the incremental method is justified, it is necessary in this matter to review the legislative history of the projects in order to determine whether Congress intended the projects to be constructed as single-purpose flood control or as multipurpose projects.

The Flood Control Act of 1938, 52 Stat. 1215, wherein Congress "adopted and authorized" the Cumberland Basin Projects as part of the works of improvement within the Ohio River Basin, incorporated by reference and approved for "initiation and partial accomplishment" the general comprehensive plan for flood control and other purposes in the Ohio River Basin, as set forth in "Flood Control Committee Document No. 1, 75th Cong., 1st Sess." This Document, dated April 6, 1937, was an emergency report dealing with flood control features, but actually it supplemented previous studies which covered other features such as navigation and power. The basic documents were House Document No. 306, 74th Cong., 1st Sess., dated April 14, 1935, and House Document No. 38, 73d Cong., 1st Sess., dated April 27, 1933. These Army Corps of Engineers' reports constituted a general plan for improvement of the Ohio River Basin for all purposes, including waterpower, and they must be weighed in connection with other facts and circumstances in considering the overall character of the authorization of these projects. It appears that power was included as one of the purposes of the Wolf Creek, Dale Hollow, and Center Hill projects from their inception and throughout the planning stages.

Examination of various appropriation laws passed after 1938 discloses that little, if any, funds were made available for actual full scale construction of the Wolf Creek, Center Hill, and Dale Hollow projects even for flood control purposes prior to 1941. In fact no substantial progress toward construction of these projects was made until December 17, 1941, when the necessary funds were appropriated to expedite construction primarily for the purpose of furnishing a source of electric power vital to the national defense effort.

The report submitted on December 3, 1941, by the House Appropriations Committee on the Third Supplemental National Defense Appropriation Bill, 1942,[1] discloses that the sum of $3,100,000 was recommended for continuation of the Wolf Creek multiple flood-control and power project as part of a concerted effort to provide an adequate power supply for the National Defense Production Program. The report submitted on December 11, 1941, by the Senate Appropriations Committee on this legislation[2] indicates that the sum of $4,000,000 was included for construction of the Center Hill and Dale Hollow projects.

[1] H. Rept. 1470, 77th Cong., 1st Sess., p. 33.
[2] S. Rept. 894, 77th Cong., 1st Sess., p. 6.

General Thomas M. Robins, Assistant to the Chief of Engineers, U.S. Army, testified on November 12, 1941,[3] that the Wolf Creek dam then under construction on the Cumberland River was "both a flood control and a power project, a multiple purpose; one of the best power projects in that part of the country" He further stated that the legislation then under consideration would provide about $49,000,000 of the $54,000,000 total expected cost of the dam and that "it has a very valuable flood-control storage and a very valuable power feature" with an ultimate installed capacity of 250,000 kilowatts which will produce 780,000,000 kilowatt-hours annually. Funds in the amount of $2,500,000 had already been allotted for the construction of the Wolf Creek Reservoir project.[4]

On December 8, 1941, General Reybold, Chief of Engineers, U.S. Army, at the hearings on the Third Supplemental National Defense Appropriations Bill, 1942,[5] recommended early construction of both the Center Hill and Dale Hollow projects upon the basis of the then existing market for power.

The above-discussed acts of Congress can reasonably be construed as constituting an initial authorization of the Wolf Creek, Center Hill, and Dale Hollow projects primarily for the multiple-purpose uses for flood control and generation of electric power. Both of these purposes, as we have seen, were included in initial plans for multiple-purpose development of the Cumberland River. The Flood Control Act of 1938 provided for the construction of urgently needed flood control features and deferred power for future legislative action. Complementing the 1938 Act, snbsequent enactments, notably the Third Supplemental National Defense Appropriation Act in 1941 and the Flood Control Act of 1946, consistent with the original or basic plan of development, provided for timely construction of vitally needed power facilities.

Our study of the legislative history of the Flood Control Act of 1938 and subsequent related laws reveals that Congress always intended that these projects be multipurpose (both power and flood control) and, therefore, the cost to be used as the basis for rate schedules should include an allocated portion of the joint costs rather than the incremental costs only as used by the Secretary.

We now consider whether or not the Secretary is justified in using a 2 percent interest rate in order to meet the requirements of Section 5 of the Flood Control Act of 1944.

In 1945, the Commission used an interest rate of 2½ percent in connection with Federal projects to compute interest during construction and annual financial requirements of the Bonneville Project. Under the Bonneville Act, the Commission was authorized to determine the investment costs (including development costs) allocable to power. Interest during construction was an integral part of such costs. It was determined that the proper rate of interest to be used should be based on the interest paid by the Government on Treasury Bonds (long-term debt) during the construction period of the Bonneville Project. At that time (1945) such rate of interest was 2½ percent. Since then, that rate of interest has been used by the Commission in determining the costs of service of all Federal projects over which it has a responsibility for approval of rate schedules. The Secretary of the Interior, as marketing agent for Bonneville power, accepted the 2½ percent rate of interest for the Bonneville Project and has since used that rate in determining the cost to be returned by all Federal projects under his jurisdiction, the rate schedules for which must be approved by the Commission, except for the Cumberland River Projects involved in this proceeding.

The Secretary has not questioned that the rate of interest on long-term government bonds during the construction of the three projects involved in the subject filing was about 2½ percent; but bases his support of the use of the lower rate substantially on the President's budget message of January 3, 1947, and on the fact that TVA paid no more than 2 percent on its bonds sold to and held by the Treasury as authorized under the TVA Act.

The President, in the above message, recommended that government corporations which had been paying interest during the war period at the rate of 1 percent should start paying at a rate based on the average of long and short-term borrowing by the Treasury, which at that time was about 1.8 percent. SEPA and other marketing agencies for Federal power are not government corporations referred to in the President's message and were never authorized

[3] Hearings before the Subcommittee of the House Appropriations Committee on the Third Supplemental National Defense Appropriation Bill for 1942, 75th Cong., 1st Sess., p. 413.
[4] Ibid., p. 406.
[5] Hearings before the Senate Committee on Appropriations, 75th Cong., 1st Sess., p. 86.

to reduce their rate of interest to 1 percent. It is not readily conceivable, therefore, why SEPA, alone of the marketing agencies and only in this specific instance, should be singled out to be included among those agencies specified by the President to use a rate of 1.8 percent.

With respect to the interest rate paid by TVA, it should be noted that, except during the past few years, the rate of interest paid by TVA on its bonds was unrelated to the rates specified in the bond issues. At the time the 2 percent rate was agreed upon by SEPA and TVA, the latter had $56,500,000 in bonds outstanding. These bonds consisted of four issues varying in terms from 12 to 30 years, and the rates of interest specified in the issues varied from 1.75 to 2½ percent, respectively. During the negotiating period, TVA paid interest at the rate of 1 percent on its bonds, and it was not until August 15, 1949, that the rate was increased to 2 percent. From August 15, 1949, to August 15, 1953 (except for one year), the rate remained at 2 percent at which time it was increased to 2⅜ and 2½ percent which were the rates specified in the issues then outstanding. Therefore, it appears that prior to August 15, 1953, and especially at the time the proposed 2 percent rate of interest was negotiated, TVA's interest charges on its bonds were at a rate less than the rate under which the bonds were sold. It should also be noted that the rate of interest specified in TVA's longest term bonds was 2½ percent and that rate was paid on those bonds from August 1953, until their retirement in August 1955.

It therefore appears that the Secretary's use of a 2 percent interest rate has been justified.

In view of the foregoing, the Commission finds that the rate schedules based on the incremental allocation of costs and an interest charge of only 2 percent on the unamortized investment will not return the cost of these projects pursuant to the requirements of Section 5 of the Flood Control Act of 1944.

The Commission orders:

The rates and charges contained in the contract with the Tennessee Valley Authority for the sale of power generated at the Wolf Creek, Dale Hollow, and Center Hill projects, submitted by the Assistant Secretary of the Interior on behalf of the Southeastern Power Administration, all as described above, are hereby disapproved.

By the Commission.

JOSEPH H. GUTRIDE, *Secretary.*

AGREEMENT BETWEEN THE SECRETARY OF THE INTERIOR AND THE TENNESSEE VALLEY AUTHORITY

This agreement is made as of December 18, 1948, between the Secretary of the Interior (hereinafter referred to as Interior) and the Tennessee Valley Authority (hereinafter referred to as Authority).

The Corps of Engineers of the Department of the Army (hereinafter referred to as Army) has under construction three multiple purpose dam and reservoir projects on the Cumberland River and its tributaries, the Center Hill project on the Caney Fork River, the Dale Hollow project on the Obey River, and the Wolf Creek project on the Cumberland River (hereinafter collectively referred to as the Cumberland projects). Under section 5 of the Flood Control Act of 1944 (58 Stat. 887, 890; 16 U.S.C., 1946 ed., sec. 825s), Interior is charged with the duty of disposing of the hydroelectric power which is generated at the projects and is not needed in their operation.

Under said Act Interior is required to dispose of the power in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, and with regard to recovering the cost of producing and transmitting the power, including amortization of the capital investment over a reasonable period of years, and with preference being given to public bodies and cooperatives.

Approximately 70 percent of the Cumberland Basin lies within the area being served with electricity produced at Authority's plants, and approximately 80 percent of the entire electric power requirements of the Cumberland Basin is being supplied by Authority. In its resource development program, which includes the widespread distribution of power at low cost to the consumer, Authority requires additional sources of electric power in order to supply adequately the growing needs for electricity in its service area, including that portion of the service area within the Cumberland Basin. Because of the

geographic position of Authority's power system, the Cumberland projects, would contribute most effectively to the purposes of section 5 of the Flood Control Act of 1944 if the entire power output of the projects were sold to Authority and marketed over its system.

In the light of these facts, Interior has determined that the most practicable plan for the disposition of the surplus power generated at the Cumberland projects in conformity with the requirements of section 5 of the Flood Control Act of December 22, 1944, would be the sale of the power to Authority, and a preliminary agreement was entered into between Interior and Authority in a letter dated February 10, 1947. The arrangements provided for therein are developed in more detail herein.

Therefore, Interior and Authority agree as follows:

1. *Term.*—This agreement shall be effective upon its execution and, shall continue in effect until cancelled by mutual agreement or by either party upon written notice given not less than 10 years prior to the date of cancellation specified therein, the cancellation to be effective not earlier than December 18, 1968.

2. *Operation of the Cumberland Projects.*—The Cumberland projects shall be operated in accordance with an operating agreement between Authority and Army. It is contemplated that the operating agreement will provide, among other things, for the storage and release of water as requested by Authority for optimum production of power and energy in conjunction with Authority's power system, subject to the flood control and other operating requirements of Army, and for adequate operating records, including records of the generation of power at the Cumberland projects and deliveries hereunder.

3. *Power Supply.*—During the term of this agreement the total power and energy generated at the Cumberland projects less the power and energy required by Army in connection with the operation of the projects shall be delivered to Authority in the form of 3-phase alternating current at a frequency of approximately 60 cycles per second at the outgoing terminals of the switchyards of these projects. If at any time the power and energy generated at any of these projects is less than that required by Army in connection with the operation of the project, Authority shall deliver at the outgoing terminals of the switchyard of that project sufficient power and energy to compensate for the deficit.

4. *Schedule of Rates and Charges and Relationship of Payments to Water Conditions.*—

(a) The annual payments to Interior by Authority for power delivered hereunder, as specified in subsection (b) of this section, are estimated to produce average annual payments, over a period of years in which the amount and distribution of the power available at the Cumberland projects is normal as indicated by long-time stream flow records, as set forth in the following schedule, showing such information for the individual projects, together with the number of generating units and capacity which will be available at each upon completion thereof as now scheduled:

Project	Installed capacity		Estimated average annual payments
	Number of units	Kilowatts	
Dale Hollow	2	36,000	$500,000
Center Hill	3	135,000	1,000,000
Wolf Creek	6	270,000	2,000,000
Total	11	441,000	3,500,000

(b) The basic annual charge shall be $425,000 beginning with the initial commercial operation of the first generating unit at Dale Hollow, and shall be increased by $75,000 upon the initial commercial operation of the second Dale Hollow generating unit, by $700,000 upon the initial commercial operation of the first generating unit at Center Hill, by $1,250,000 upon the initial commercial operation of the first generating unit at Wolf Creek, and by $150,000 upon the initial commercial operation of each additional generating unit at Center Hill or Wolf Creek. If a third generating unit is installed at Dale Hollow, such appropriate addition to the basic annual charge as the parties agree upon shall be made. The initial basic annual charge and any increases thereof are for a full

year (ending June 30) and shall be prorated to reflect the dates of initial operation of units placed in service during the year.

(c) The basic annual charge shall be the applicable charge for each year (ending June 30) in which the average unregulated flow of water into the Wolf Creek reservoir (or at the dam site, prior to closure of the dam) is between 8,500 and 9,250 c.f.s. The basic annual charge shall be adjusted to determine the applicable charge in particular years in accordance with variations in the said flow of water, as follows: For each 750 c.f.s. or fraction thereof by which the said flow of water for the year is greater than 9,250 c.f.s. the applicable charge shall be greater by one-seventh than the basic annual charge; for each 500 c.f.s. or fraction thereof by which the said flow of water for the year is less than 8,500 c.f.s. the applicable charge shall be less by one-seventh than the basic annual charge; provided that the applicable charge for any year shall be not less than three-sevenths nor more than eleven-sevenths of the basic annual charge.

(d) The parties will establish from time to time the basis for facilitating the determination of the annual inflow into Wolf Creek reservoir, for purposes hereof.

(e) It is the intention of the parties that applicable charges to Authority shall cover all fair and reasonable costs of producing power and energy, including the amortization over a reasonable period of years of the capital invested therein and allocated to power, and at the same time shall effectuate the policy of Congress to dispose of the power in such manner as to encourage the most widespread use thereof at the lowest possible rates consistent with sound business principles. Therefore, the parties will review the results of operations and the determination of applicable charges, at the request of either party, but not at intervals shorter than five years unless otherwise agreed, in order to determine jointly whether a change in the applicable charges is necessary to achieve the foregoing objectives. Any changes so agreed upon shall be put into effect as soon as practicable.

5. *Approval of Schedule of Rates and Charges.*—The schedule of rates and charges provided for in this agreement shall become effective upon confirmation and approval by the Federal Power Commission, and shall apply retroactively to December 18, 1948.

6. *Payments by Authority.*—As soon as practicable after the end of each fiscal year, Interior shall determine the applicable charge for such year in accordance with the provisions of section 4, and shall render a bill to Authority therefor. The amount due shall be payable within 90 days. Upon termination of this agreement, final payment shall be made by Authority of any amounts then due and unpaid.

7. *Extension of Authority's Transmission System.*—Authority agrees to design, construct, operate, and maintain all of the necessary transmission facilities to interconnect the Cumberland projects with the Authority's power system. The parties agree that, with the completion of such facilities, Authority's power will be available for use in accordance with the provisions of the TVA Act in that portion of Kentucky in the general vicinity of the Cumberland projects.

8. *Uncontrollable Forces.*—Neither party shall be considered to be in default in respect to any obligation under this contract if prevented from fulfilling such obligation by reason of uncontrollable forces. For the purposes of this contract, the term "uncontrollable forces" means any cause beyond the control of the party affected, including, but not limited to, failure of facilities, flood, backwater caused by flood, earthquake, storm, lightning, fire, epidemic, war, riot, civil disturbance, labor disturbance, sabotage, and restraint by court or public authority, which by exercise of due diligence and foresight such party could not reasonably have been expected to avoid. Either party rendered unable to fulfill any obligation by reason of uncontrollable forces shall exercise due diligence to remove such inability with all reasonable dispatch.

9. *Waivers.*—Any waiver at any time by either party hereto of its rights with respect to a default or any other matter arising in connection with this contract shall not be deemed to be a waiver with respect to any subsequent default or matter.

10. *Notices.*—Communications under this agreement shall be addressed by the Secretary to the Manager of Power, Tennessee Valley Authority, Chattanooga, Tennessee, on behalf of Authority and by the Authority to the Director of the Division of Power, Department of the Interior, Washington, D.C. The designation of the person to be notified or the address of such person may be changed by either party at any time, or from time to time, by similar notice.

11. *Appropriations.*—To the extent that fulfillment of the obligations of either party hereunder is dependent upon the availability of appropriated funds, performance by such party shall be excused, and no liability shall attach, if it is prevented from fulfilling such obligations because of the failure of Congress to provide the necessary appropriations.

In witness whereof, this agreement has been executed by the parties as of December 18, 1948.

(s) GEORGE F. GANT,
General Manager, Tennessee Valley Authority.
(s) J. A. KRUG,
Secretary of the Interior.

Approved by TVA Board of Directors March 29, 1949.

(s) LEONA LEROY,
Assistant Secretary.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., May 7, 1952.

MANAGER OF POWER,
Tennessee Valley Authority,
Chattanooga, Tenn.

DEAR SIR: In accordance with Paragraph 10, Notices, of an Agreement Between the Secretary of the Interior and the Tennessee Valley Authority (Iep–2; TV–6258A) you are notified to hereafter address all communications under this agreement to:

Administrator,
Southeastern Power Administration,
Elberton, Ga.

Sincerely yours,

(Sgd.) OSCAR L. CHAPMAN,
Secretary of the Interior.

EXHIBIT 2–A

[Conformed copy]

SUPPLEMENTAL AGREEMENT NO. 1 TO CONTRACT NO. IEP–2 TV–6258A

This Supplemental Agreement executed July 26, 1955, amends the agreement of December 18, 1948, between the Secretary of the Interior and the Tennessee Valley Authority and is made as a result of a joint review of the (1) results of operations at the Cumberland Projects since initial commercial operation and (2) determination of applicable charges as provided in paragraph (e) of Section 4 of said agreement.

Accordingly, it is agreed that the said agreement of December 18, 1948, be amended in the following respects:

1. Paragraphs (a), (b), and (c) of Section 4 shall be deleted and the following shall be inserted in lieu thereof:

"(a) The payments to Interior by Authority for power delivered hereunder are estimated to produce an average annual payment of $3,950,000 over a period of years in which the amount and distribution of power available from the Cumberland Projects is normal as indicated by long-time stream flow records.

"(b) The basic annual charge shall be $3,950,000, and shall be the applicable annual charge to be paid for each year (ending June 30) in which the average unregulated flow of water into the Wolf Creek reservoir is between 8,500 and 9,250 c.f.s. To determine the applicable annual charge in other years, the basic annual charge shall be adjusted in accordance with variations in said flow of water, as follows: For each 750 c.f.s. or fraction thereof by which the said flow of water for the year is greater than 9,250 c.f.s., the applicable annual charge shall be greater by $560,000 (one-seventh of the basic annual charge rounded to the nearest $10,000); for each 500 c.f.s. or fraction thereof by which the said flow of water for the year is less than 8,500 c.f.s., the applicable charge shall be less by $560,000; provided that the applicable annual charge for any year shall be not less than $1,710,000 nor more than $6,190,000."

2. Paragraphs (d) and (e) of Section 4 shall remain in effect but shall be redesignated as (c) and (d) respectively.

3. Section 6 shall be deleted and the following shall be inserted in lieu thereof:

"6. *Payments by Authority.*—The Authority shall pay the applicable annual charge to Interior in monthly installments as follows:

"(a) For the months of July through December the monthly installment payment will be $150,000.

"(b) For the month of January and each succeeding month through June the monthly installment payment will be computed as follows:

"(1) The estimated applicable annual charge will first be computed in accordance with paragraphs (a) and (b) of Section 4 using an estimated average flow for the year determined by combining the inflow from the beginning of the fiscal year through the month for which the installment payment is being computed with the minimum probable inflow for the remainder of the fiscal year as listed in Table I below opposite the month for which said payment is being computed.

"(2) The installment payment will then be determined by taking the difference between the estimated applicable annual charge for the fiscal year as determined under (1) and the total of the installment payments for the preceding months in that fiscal year and multiplying said difference by the percentage listed in Table II opposite the month for which the installment payment is being computed.

Month	Table I (second-foot days)	Table II (percentage)
January	800,000	20
February	700,000	25
March	290,000	30
April	50,000	40
May	7,800	50
June	0	100

"(c) In the event that the total of the monthly installment payments for any fiscal year exceeds the applicable annual charge for that fiscal year, the excess shall be credited against the monthly installment payments for the succeeding fiscal year.

"(d) The bill for any month shall be rendered promptly after the end of the month and shall be paid within 30 days after the date of mailing."

4. Section 10 shall be deleted and the following shall be inserted in lieu thereof:

"10. *Notices.*—Communications under this agreement shall be addressed by the Administrator to the Manager of Power, Tennessee Valley Authority, Chattanooga, Tennessee, on behalf of Authority, and by the Authority to the Administrator, Southeastern Power Administration, Elberton, Georgia. The designation of the person to be notified or the address of such person may be changed by either party at any time, or from time to time, by similar notice."

5. This agreement shall become effective as of July 1, 1955, except that the payment for the fiscal year ending June 30, 1955, under the aforesaid 1948 agreement shall be determined in accordance with Section 1 of this Supplemental Agreement.

In witness whereof, this Supplemental Agreement has been executed by the parties as of the day and year first above written.

CHAS. W. LEAVY,
Administrator, Southeastern Power Administration.

[SEAL]

A. J. WAGNER,
General Manager, Tennessee Valley Authority.

C.A.R.
L.A.W.

Approved by TVA Board of Directors July 26, 1955.

LEONA L. MALKEMUS, *Ass't Secretary.*

EXHIBIT 3

LEGISLATIVE HISTORY PERTINENT TO ALLOCATION OF COSTS, WOLF CREEK, CENTER HILL, AND DALE HOLLOW PROJECTS, CUMBERLAND RIVER BASIN

The subject projects were originally authorized for construction as flood control (only) projects in the Flood Control Act of 1938 (H.R. 10618; 52 Stat. 1215, 1217). Senator Overton, chairman of the Senate committee in charge of the bill, explained H.R. 10618 as follows:

"The bill authorizes the construction of certain projects for flood control purposes. The projects as authorized do not encompass their use for the development of power. They may be used for power, but before they can be used for power the projects authorized by the pending bill will have to be modified. There will have to be further authorization by Congress, further appropriations, before they can be utilized for power."

Construction of Wolf Creek was commenced in July 1941; Dale Hollow and Center Hill in 1942. The "further authorization by Congress" referred to by Senator Overton above as necessary to include power in the projects was, according to the Corps of Engineers, given in the Third Supplemental National Defense Act of 1942, approved December 17, 1941. Considerable expenditures were made for power purposes prior to orders to suspend construction in 1943 for reasons related to national defense (see p. 67, H. Doc. 761, 79th Cong., 2d sess.).

The projects were reauthorized as flood control and power projects in the River and Harbor Act of 1946, H.R. 6407 (60 Stat. 634, 636). The authorization of the projects was in accordance with the report of the Chief of Engineers, dated May 20, 1946 (H. Doc. 761, 79th Cong., 2d sess.).

The Chief of Engineers stated on page 2 of House Document 761, that the Board of Engineers "recommended the improvement of the Cumberland River and tributaries for navigation, flood control, power development, and other purposes, to include completion of Wolf Creek, Dale Hollow, and Center Hill Dams with power installations; * * * generally in accordance with the plans proposed by the district engineer * * *" and that he concurred in the views and recommendations of the Board.

The district engineer's plan, reproduced in House Document 761, stated on page 66 as to the economic analysis of the projects:

"Evaluation of the power development in each project under group A (Wolf Creek, Center Hill, Dale Hollow, Stewarts Ferry, Three Islands, and Rossview) is made on the basis of the estimated increased cost to provide the combined flood control and power features over and above the estimated cost of a project for flood control only. In group B (Lower Cumberland and Cheatham Dams), the increased cost for navigation and power over and above the cost for navigation only is used. Minimum costs for flood control only and for navigation only are used. This is considered to be a fair and equitable method of analysis. The group C projects (Celina, Carthage, and Old Hickory) are primarily for power, and for this reason the power developments are charged with all project costs except such expenditures as might be made directly for navigation locks.

"Annual value of benefits in connection with pollution abatement at Nashville, however, is taken into consideration in the economic analysis of the Wolf Creek project. * * * Estimates of annual charges on the powerplants include ample amounts to take care of operation and ordinary maintenance, depreciation and obsolescence, and amortization of costs on features not depreciable. The total of annual charges in each case is considered to be sufficient to run the power development, cover overhead, and pay off the Federal investment in power at the end of 50 years."

To evaluate cost of power on "the basis of the estimated increased cost to provide the combined flood control and power features over the estimated cost of a project for flood control only" is to assign the "incremental" cost to power.

The above narrative reference to the analysis made is supported statistically on pages 73 and 80 of House Document 761.

[P. 73, 11. Doc. 761]

Summary of engineering data and economics of system of power developments in the Cumberland Basin

Projects	Total estimate project cost [1]	Federal investment in power development		Production cost of energy in average year (mills per kilowatt hour)	Assumed total value of power in average year	Estimated annual charges on power development	Value of power in excess of annual charges	Ratio of annual charges to power valued in average year
		Total	Per kilowatt of plant installation					
Wolf Creek	$61,300,000	$44,300,000	$164	2.54	[2] $3,870,000	$2,200,000	$1,670,000	1 to 1.76.
Center Hill	29,900,000	18,500,040	206	2.77	1,535,000	910,000	625,000	1 to 1.69.
Dale Hallow	17,400,000	10,500,000	292	4.17	600,000	500,000	100,000	1 to 1.20.
Stewarts Ferry	12,000,000	3,914,040	280	3.85	254,000	200,000	54,000	1 to 1.27.
Three Islands	10,000,000	4,223,000	422	4.67	217,000	210,000	7,000	1 to 1.03.
Rossview	[3] 6,400,000	46,400,000	309	3.06	2,870,000	2,300,000	570,000	1 to 1.25.
Lower Cumberland Dam	58,000,000							
Cheatham	[4] 6,400,000	17,400,000	290	3.74	1,000,000	860,000	140,000	1 to 1.16.
Celina	16,900,000	20,400,000	227	2.97	1,340,000	1,020,000	670,000	1 to 1.66.
Carthage	19,900,000	25,700,000	215	2.65	2,075,000	1,330,000	745,000	1 to 1.56.
Old Hickory	25,600,000							
System totals	264,700,000	191,433,000	[5] 228	[5] 2.94	14,111,000	9,530,000	4,581,000	[5] 1 to 1.48.

[1] Approximate appropriation of public funds necessary to execute the projects.
[2] Includes $50,000 credit annually for pollution abatement.
[3] Total for flood control only.
[4] Total for navigation only.
[5] System averages.

[P. 80, H. D. 761]

Projects in the comprehensive plan for development of the water resources of the Cumberland River Basin

[In thousands]

Priority	Project	Project costs						
		Navigation only	Flood control only	Power only	Flood control with provisions for future power	Navigation with provisions for future power	Flood control and power	Navigation and power
1	Wolf Creek		$18,900		$39,400		$61,300	
	Dale Hollow		7,200		14,200		17,400	
	Center Hill		12,200		20,500		29,900	
	Stewarts Ferry		8,200		8,800		12,000	
2	Cheatham	$6,400						
	Lower Cumberland					$41,900		$58,000
3	Three Islands		6,800		9,000		10,900	
	Rossview		6,400					
4	Celina			$16,900				
	Carthage			19,900				
	Old Hickory			25,600				31,300

Repeated reference is made in H.D. 761 to appendix 7 to the Survey Report submitted by the District Engineer on February 15, 1945. With regard to the evaluation of the power developed, appendix 7 contains the following:

"*Evaluation of power.*—Evaluation of the power development in each case is made on the basis of the estimated increased cost to provide the combined flood control and power features, over and above the estimated cost of a project for flood control only. The minimum cost for flood control only is used. This is considered to be a fair and equitable method of analysis" (App. 7, 7–18).

"WOLF CREEK PROJECT

"*Allocation of costs.*—The total cost allocated to the power development is $42,400,000. This is the difference between the total estimated first cost for the dual-purpose project and that for the flood-control-only project. By adding interest during construction the total increased Federal investment applicable to the power development becomes $44,300,000" (App. 7, 7–22).

Wolf Creek project: estimated increased investment and annual charges for dual-purpose development

Allocation of cost:	
Total estimated cost of single stage, dual-purpose development, flood control and power	$61,300,000
Total estimated cost of project for flood control only	18,900,000
Cost allocated to power development	42,400,000
Increased Federal investment:	
Increased cost of project	42,400,000
Interest during construction, 3 percent for 1.5 years, or one-half of 3-year construction period, say	1,900,000
Total increased investment	44,300,000
Increased Federal annual charges:	
Interest, 3 percent of total net increased investment	1,330,000
Depreciation and obsolescence	450,000
Amortization, 50-year basis, features not depreciable	220,000
Operation and maintenance	200,000
Total increased annual charges for dual-purpose development over those on project for flood control only	**2,200,000**

(App. 7, 7–27)

"*Annual charges on power development.*—Annual charges are estimated at $2,200,000. This represents the total increased Federal yearly costs for a dual-purpose project over those for the alternate flood control only project. It includes interest on the investment allocated to power, and substantial amounts to take care of operation and maintenance, depreciation and obsolescence, and amortization of costs on features not depreciable. It should be enough to run the power development, cover overhead, and pay off the investment to power at the end of 50 years" (App. 7, 7–22, 23).

DALE HOLLOW PROJECT

"*Allocation of costs.*—The total cost allocated to power is $10,200,000. This is the difference between the total estimated first cost for the dual-purpose project and that for the flood control only project. Including interest during construction, the increased Federal investment applicable directly to the power development becomes $10,506,000" (App. 7, 7–31).

Dale Hollow project: estimated increased investment and annual charges for dual-purpose development

Allocation of cost:	
Total estimated cost of single stage, dual-purpose development, flood control and power	$17,400,000
Total estimated cost of project for flood control only	7,200,000
Cost allocated to power development	10,200,000
Increased Federal investment:	
Increased cost of project	10,200,000
Interest during construction, 3 percent for 1 year, or one-half of 2-year construction period	306,000
Total increased investment	10,506,000
Increased Federal annual charges:	
Interest, 3 percent of increased Federal investment, say	315,000
Depreciation and obsolescence	90,000
Amortization, 50 year basis, features not depreciable	45,000
Operation and maintenance	50,000
Total increased annual charges for dual-purpose development over those on project for flood control only	500,000

(App. 7, 7–35)

"*Annual charges on power development.*—Estimated annual charges amount to a total of $500,000 and represent the increased Federal yearly costs for the dual-purpose project over those for the alternate flood control only project. It includes interest on the investment allocated to power, and substantial amounts to take care of operation and maintenance, depreciation and obsolescence, and amortization of costs of features not depreciable. It should be enough to run the power development, cover overhead, and pay off the investment in power at the end of 50 years" (App. 7, 7–31).

CENTER HILL PROJECT

"*Allocations of costs.*—The total cost allocated to power is $17,700,000. This is the difference between the total estimated first cost for the dual-purpose project and that for the flood control only project. Including interest during construction, the increased Federal investment applicable directly to the power development becomes $18,500,000" (App. 7, 7–40).

Center Hill project: estimated increased investment and annual charges for dual-purpose development

Allocation of cost:	
Total estimated cost of single stage, dual-purpose development, flood control and power	$29,900,000
Total estimated cost of project for flood control only	12,200,000
Cost allocated to power development	17,700,000
Increased Federal investment:	
Increased cost of project	17,700,000
Interest during construction, 3 percent for 1.5 years or one-half of 3 year construction period	800,000
Total increased investment	18,500,000
Increased Federal annual charges:	
Interest, 3 percent of increased Federal investment	555,000
Depreciation and obsolescence	190,000
Amortization, 50 year basis, features not depreciable	90,000
Operation and maintenance	75,000
Total increased annual charges for dual-purpose development over those on project for flood control only	910,000

(App. 7, 7–45)

"*Annual charges on power development.*—Estimated annual charges amount to a total of $910,000 and represent the increased Federal yearly costs for the dual-purpose project over those for the alternate flood-control project. It includes interest on the investment allocated to power and substantial amounts to take care of operation and maintenance, depreciation and obsolescence, and amortization of costs on features not depreciable. It should be enough to run the power development, cover overhead, and pay off the investment in power at the end of 50 years" (App. 7, 7–40).

Prior to December 18, 1948, the effective date of the 20-year contract with TVA, the Secretary of Interior pursuant to the responsibility delegated him by section 5 of the Flood Control Act of 1944 and through the judgment and discretion inherent in the performance of such responsibility made the decision that the costs allocated to power should be determined through the use of the incremental method of cost allocations. His determination was that the legislative history supported his decision.

EXHIBIT 4

RATE OF INTEREST USED, WOLF CREEK, CENTER HILL AND DALE HOLLOW PROJECTS, CUMBERLAND RIVER BASIN

The Secretary of the Interior determined that the rate of interest during construction and during the period of amortization of the investment should approximate the then current average rate of interest on all outstanding marketable obligations of the United States. Specifically, the rate was determined to be 2 percent.

Except where Congress has by statute dealt with the subject of interest in a congressional program, it has left the question to the President and his fiscal arm, the Treasury. The matter of interest in the repayment of the projects of the type under consideration has been left to the Executive.

The record reveals that the Secretary relied upon the following authorities in arriving at his decision:

(1) General policy outlined in the President's budget message of January 3, 1947, as follows:

"From now on most corporation programs will be revenue producing. Accordingly, I recommend that corporations be required to reimburse the Treasury for the full cost to it of money advanced to the corporations. Interest paid on borrowings from the Treasury should be based upon the current average rate on outstanding marketable obligations of the United States—now about 1.8 percent. Dividends should be paid on capital stock, if earned. While these changes

in the amount of intragovernmental transactions will not affect the budget deficit or surplus, they will cause the corporations' records to reflect more clearly the true costs of their operations."

(2) Letter from the Fiscal Assistant Secretary of the Treasury to the Administrator, Bonneville Power Administration, dated February 20, 1947, as follows:

FEBRUARY 20, 1947.

Mr. PAUL J. RAVER,
Administrator, Bonneville Power Administration,
Department of the Interior, Portland, Oreg.

DEAR MR. RAVER: I am sorry that there has been so much delay in replying to your letter of October 30, 1946, concerning the appropriate rate of interest to be used in computing the amortization of the Government's investment in the Bonneville power project.

I am enclosing the interest tabulations requested. However, I believe that the average interest rate on the entire marketable public debt would be more appropriate for your purposes than the basis which has been used in the past. This rate was 1.828 percent on January 31, 1947. Such rate appears as of the end of each month in the "Summary of Public Debt and Guaranteed Obligations" which is shown on page 5 of the daily Treasury statement for the first working day of the succeeding month. I am enclosing for your information a copy of the daily Treasury statement of February 3, 1947. There is also enclosed a table which shows the average interest rate on outstanding marketable obligations, by months, beginning in January 1945.

The funds raised by the Government for the Bonneville project, like those raised for all other purposes, were obtained partly from taxation and partly from borrowing through the issuance of obligations of various types and various maturities. The character of the expenditures currently being made by the Government has at no time had a significant influence on the types of obligations currently being issued. The proportion of short-term and long-term obligations issued from time to time has, on the contrary, been determined by quite different considerations. I see no reason, therefore, why the Bonneville project should not be entitled to its pro rata share of the saving in interest made by the Government due to the issuance of short-term obligations.

It seems to me that the problem of the appropriate rate on Government funds invested in the Bonneville project is substantially the same as that of the rate on such funds advanced by the Treasury to Government corporations. The President, in his 1948 budget message, comments as follows with respect to such advances:

"From now on most corporation programs will be revenue-producing. Accordingly, I recommend that corporations be required to reimburse the Treasury for full cost to it of money advanced to the corporations. Interest paid on borrowings from the Treasury should be based upon the current average rate on outstanding marketable obligations of the United States—now about 1.8 percent. Dividends should be paid on capital stock, if earned. While these changes in the amount of intragovernmental transactions will not affect the budget deficit or surplus, they will cause the corporations' records to reflect more nearly the true costs of their operations."

I hope that this gives you the information that you require.

Very truly yours,

(Signed) E. F. BARTELT,
Fiscal Assistant Secretary.

(3) Letter from Acting Secretary of the Treasury to the Chairman of the Board of the Tennessee Valley Authority, dated July 6, 1948, as follows:

JULY 6, 1948.

Hon. GORDON R. CLAPP,
Chairman, Tennessee Valley Authority, New Sprankle Building, Knoxville, Tenn.

DEAR MR. CLAPP: The Treasury Department now holds the following bonds of the Tennessee Valley Authority:

Bond	Interest rate (percent)	Amount
1943-51	1¾	$7,500,000
1947-57	2¼	15,000,000
1951-63	2⅜	15,000,000
1955-69	2½	16,500,000
		54,000,000

Under the provisions of the Government Corporations Control Act of 1948, the Tennessee Valley Authority must retire each year, commencing with the fiscal year 1948, a minimum of $2,500,000 of its outstanding bonded indebtedness to the Treasury of the United States.

As you know, the interest rates on the above-mentioned bonds were fixed in 1940 in anticipation of the subsequent sale of the bonds in the market by the Treasury. By special arrangements between the Tennessee Valley Authority and the Treasury Department, and in line with the rate of interest charged to all agencies borrowing from the Treasury at that time, but subject to change at the election of the Treasury, interest has been collected on these bonds at the rate of 1 percent per annum since August 15, 1941, in lieu of interest at the coupon rates specified in the bonds. No action was taken to sell the bonds to the public because the Treasury subsequently decided to finance all agencies by direct advances.

In view of the rise in interest rates during the past year and the statement of general policy outlined in the President's budget message of January 3, 1947, that the interest charged Government corporations on borrowings from the U.S. Treasury should be at a rate such as to reimburse the Treasury for the cost of funds, the Treasury proposes to increase the interest rate on the bonds of the Tennessee Valley Authority to 1⅞ percent per annum, which is the nearest multiple of one-eighth of 1 percent below the average rate of 1.942 percent on the interest-bearing marketable obligations of the Government outstanding at June 30, 1948. The new rate would become effective August 16, 1948, and be subject to change from time to time as conditions may warrant.

I would be glad to have any comments that you may care to make on the proposed change in the rate of interest to be charged by the Treasury on bonds of the Tennessee Valley Authority.

Very truly yours,

(S) A. LEE M. WIGGINS,
Acting Secretary of the Treasury.

(4) The statute making REA loans in which the Congress set an interest rate of 2 percent was considered to deal with an analogous activity as were the activities mentioned in (2) and (3) above.

EXHIBIT 5

U.S. DEPARTMENT OF THE INTERIOR,
SOUTHEASTERN POWER ADMINISTRATION,
Elberton, Ga., November 26, 1958.

Mr. G. O. WESSENAUER,
Manager of Power,
Tennessee Valley Authority,
Chattanooga, Tenn.

DEAR MR. WESSENAUER: Earlier this year the Federal Power Commission issued an order, copy attached, disapproving the rates and charges contained in our contract dated December 18, 1948, as amended, covering sale of power from Wolf Creek, Center Hill, and Dale Hollow projects to TVA. The disapproval was on the basis that both the amount of capital costs allocated to power and the interest rate used by the Secretary of the Interior failed to meet the re-

quirements of section 5 of the Flood Control Act of 1944. Some action must be taken by the Department of the Interior in the near future. While we are generally acquainted with your position in this matter, you are, nevertheless, invited to make any further comments you may desire regarding our contract and its basis and the Commission order.

Sincerely yours,

CHAS. W. LEAVY, *Administrator.*

TENNESSEE VALLEY AUTHORITY,
Chattanooga, Tenn., December 30, 1958.

Mr. CHARLES LEAVY,
Administrator, Southeastern Power Administration,
Elberton, Ga.

DEAR MR. LEAVY: This is in response to your letter of November 26, 1958, regarding FPC's disapproval of the rates and charges contained in the contract dated December 18, 1948, as amended, between the Department of Interior and the Tennessee Valley Authority, under which power from certain Cumberland River projects is delivered to TVA.

This contract has been in effect for 10 years. Its terms and conditions were developed by the two agencies in accordance with their statutory responsibilities and after extensive joint consideration of all pertinent information. In reliance on it TVA has made long-term plans and costly investments to enable it to transmit and sell the Cumberland power to preference customers in accordance with the mutual objectives of the Department of Interior and TVA established by Congress. After review of the Commission's order it is our opinion that the validity of the contract is not affected by the order, and that the rates and charges fixed under the contract continue to be binding upon the parties.

Very truly yours,

G. O. WESSENAUER, *Manager of Power.*

Mr. CANNON. Will you summarize the TVA contract situation.

Mr. LEAVY. In 1948 Secretary Krug, the then Secretary of the Interior, entered into a contract with the Tennessee Valley Authority under which the output of the Dale Hollow, Wolf Creek, and Center Hill plants on the Cumberland River were sold to TVA on a long-term contract.

The rate was, as I understand it, subject to very considerable negotiation between the parties, and the rate which was finally fixed in the contract was based upon an allocation of costs to power upon an incremental basis and upon a 2-percent interest rate.

At that time it was felt that both of these matters were justified by the legislative history of the projects and by the practices which were suggested at that time by executive pronouncements and similar things.

The contract with a rate based upon those two factors was ultimately submitted to the Federal Power Commission for approval.

The Federal Power Commission refused to approve the contract upon that basis and, as the Department indicated in its letter, substituted its judgment for the judgment of the Secretary of the Interior.

The Department has taken the position that the acts of the then Secretary in 1948 were reasonable acts under the then existing circumstances, and that to apply policies which since have been enunciated and to apply hindsight to it is not necessary in the circumstances.

Therefore, the Department has said "We might not do the same thing now. We feel that the judgment exercised in 1948 was not upon an unreasonable basis, and we do not feel that under section 5 it is appropriate for the Federal Power Commission to substitute its judgment for that of the Secretary of the Interior in a matter in which discretion has been given the Secretary by statute."

The other problem, of course, was that it would probably not have been possible to sell the power to TVA on the basis the FPC proposed.

The situation was outlined in the Department's letter to this committee and the Appropriations Committee of the Senate as well as the Public Works Committees of the House and Senate, and as the letter indicated we are continuing to sell power to TVA under what we regard as a valid and binding contract, upon the basis that the Secretary contracted in 1948.

REPAYMENT OF COSTS

Mr. CANNON. Taking these power projects as a whole, will they all pay out in full, regardless of whether or not you increase the rate?

Mr. LEAVY. Yes, sir.

Mr. CANNON. If we do not increase the rate they will still pay out in full?

Mr. LEAVY. They will pay out in full upon the basis of the rates we are now applying.

Mr. CANNON. What term of years?

Mr. LEAVY. Fifty years.

Mr. CANNON. Dr. Fenton?

BILL NETTING TRANSACTIONS

Mr. FENTON. In connection with the netting out of bills for electric power and wheeling charges, in addition to the estimates for the fiscal year under examination, I would like to ask that the actual transactions for fiscal years 1959 and 1960 plus estimates for the balance of fiscal year 1960 be furnished for the record.

Mr. LEAVY. That can be furnished, sir.

(The information requested follows:)

ACTUAL AND ESTIMATED PAYMENTS UNDER NETTING OF BILLS PROCEDURE

Transactions with Virginia Electric & Power Co.

	VEPCO owes SEPA	SEPA owes VEPCO	Net payment by VEPCO	Net payment by SEPA
Fiscal year 1959:				
July	$79,979	$93,647		$13,668
August	87,508	67,644	$19,864	
September	81,547	109,180		27,633
October	76,419	87,097		10,678
November	74,290	87,052		12,762
December	77,980	111,607		33,627
January	79,787	73,305	6,482	
February	79,658	50,163	29,495	
March	76,412	103,722		27,310
April	126,468	51,728	74,740	
May	92,409	60,930	31,479	
June	79,143	102,183		23,040
Total	1,011,600	998,258	162,060	148,718
Fiscal year 1960 as of Feb. 1, 1960:				
July	75,431	109,175		33,744
August	82,107	98,247		16,140
September	85,688	94,685		8,997
October	133,734	53,913	79,821	
November	74,034	67,479	6,555	
December	103,089	56,967	46,122	
January	116,556	51,242	65,314	
February	170,000	55,000	115,000	
March	102,000	135,000		33,000
April	90,000	131,000		41,000
May	95,000	132,000		37,000
June	93,000	130,000		37,000
Total	1,220,639	1,114,708	312,812	206,881

Transactions with Carolina Power & Light Co.

	C.P. & L. owes SEPA	SEPA owes C.P. & L.	Net payment by C.P. & L.	Net payment by SEPA
Fiscal year 1959:				
July	$31,906	$12,134	$19,772	
August	31,081	13,753	17,328	
September	25,818	9,105	16,713	
October	24,979	10,876	14,103	
November	26,834	8,293	18,541	
December	26,065	8,485	17,580	
January	29,719	13,144	16,575	
February	30,103	14,712	15,391	
March	32,211	7,729	24,482	
April	42,715	16,449	26,266	
May	29,543	12,613	16,930	
June	31,633	9,497	22,136	
Total	362,607	136,790	225,817	
Fiscal year 1960 as of Mar. 1, 1960:				
July	30,898	7,538	23,360	
August	30,216	8,263	21,953	
September	29,160	10,227	18,933	
October	53,325	15,522	37,803	
November	29,828	12,492	17,336	
December	45,739	15,754	29,985	
January	51,282	15,722	35,560	
February	62,826	16,821	46,005	
March	27,000	7,000	20,000	
April	27,000	7,000	20,000	
May	27,000	8,000	19,000	
June	27,000	8,000	19,000	
Total	441,274	132,339	308,935	

Transactions with Georgia Power Co.

	Georgia Power owes SEPA	SEPA owes Georgia Power	Net payment by Georgia Power	Net payment by SEPA
Fiscal year 1959:				
July	$160,949	$70,556	$90,393	
August	161,039	70,556	90,483	
September	160,949	70,556	90,393	
October	151,799	70,556	81,243	
November	96,899	70,556	26,343	
December	96,899	70,556	26,343	
January	124,349	70,556	53,793	
February	124,349	70,556	53,793	
March	96,899	70,556	26,343	
April	96,899	70,556	26,343	
May	96,944	70,556	26,388	
June	207,781	70,556	137,225	
Total	1,575,755	846,672	729,083	
Fiscal year 1960 as of Mar. 1, 1960:				
July	161,009	70,556	90,453	
August	161,049	70,556	90,493	
September	161,069	70,556	90,513	
October	151,799	70,556	81,243	
November	160,995	70,556	90,439	
December	96,899	70,556	26,343	
January	141,914	70,556	71,358	
February	279,987	70,556	209,431	
March	200,000	71,000	129,000	
April	97,000	71,000	26,000	
May	152,000	71,000	81,000	
June	156,000	71,000	85,000	
Total	1,919,721	848,448	1,071,273	

Transactions with Florida Power Corp.

	Florida Power owes SEPA	SEPA owes Florida Power	Net payment by Florida Power	Net payment by SEPA
Fiscal year 1959:				
July	$40,987	$9,232	$31,755	
August	48,820	11,133	37,687	
September	36,427	9,961	26,466	
October	29,102	9,824	19,278	
November	17,458	10,010	7,448	
December	25,399	10,045	15,354	
January	38,677	11,233	27,444	
February	36,978	10,744	26,234	
March	22,550	9,537	13,013	
April	31,224	10,394	20,830	
May	34,237	10,656	23,581	
June	35,646	10,640	25,006	
Total	397,505	123,409	274,096	
Fiscal year 1960 as of Mar. 1, 1960:				
July	40,177	11,576	28,601	
August	36,033	11,836	24,197	
September	29,178	10,841	18,337	
October	21,909	11,643	10,266	
November	40,878	11,281	29,597	
December	34,758	10,701	24,057	
January	41,742	12,395	29,347	
February	20,942	11,690	9,252	
March	35,000	15,000	20,000	
April	40,000	16,000	24,000	
May	40,000	14,000	26,000	
June	15,000	15,000		
Total	395,617	151,963	243,654	

Program Data

Mr. Fenton. May we insert it in the record each year?

Mr. Leavy. Yes. I neglected a few moments ago to offer for the record a collection of exhibits which are exhibits similar to those placed in the record last year, simply brought up to date.

If this additional information you have just requested is supplied we will continue, then, to bring it up to date from year to year.

Mr. Cannon. Without objection it will be included in the record.

(The information referred to follows:)

Southeastern Power Administration

Statement of project revenues, expenses, and repayment of investment

Project	Operating revenue [1]	Electric operating expenses	Operating revenue less operating expenses	Interest on unamortized investment	Amortization of investment	Additions to electric plant in service	Remaining Federal investment	Cumulative repayment of capital
Cumberland (Center Hill, Dale Hollow, Wolf Creek):								
Cumulative through fiscal year 1956	$19,306,900	$3,422,123	$15,884,777	$9,136,219	$6,748,558	$102,291,578	$95,543,020	$6,748,558
Fiscal year 1957	5,184,363	585,224	4,599,139	1,896,314	2,702,825	45,425	92,885,620	9,451,383
Fiscal year 1958	5,648,779	628,442	5,020,337	1,843,650	3,176,687	93,784	89,802,717	12,628,070
Fiscal year 1959	1,776,959	645,601	1,131,358	1,781,465	(650,107)	41,082	90,493,906	11,977,963
Allatoona:								
Cumulative through fiscal year 1956	6,053,825	989,334	5,064,491	3,810,689	1,253,802	25,227,435	23,973,633	1,253,802
Fiscal year 1957	972,046	186,337	785,709	599,253	186,456	(7,004)	23,780,173	1,440,258
Fiscal year 1958	1,068,821	250,612	818,209	594,475	223,734	(2,326)	23,554,113	1,663,992
Fiscal year 1959	1,316,187	368,080	948,107	590,804	357,303	156,117	23,352,927	2,021,295
Clark Hill:								
Cumulative through fiscal year 1956	7,170,067	1,591,712	5,578,355	4,990,360	587,995	75,096,273	74,508,278	587,995
Fiscal year 1957	3,114,686	857,338	2,257,348	1,868,334	389,014	450,200	74,569,464	977,009
Fiscal year 1958	4,066,277	986,867	3,079,410	1,869,031	1,210,379	383,518	73,742,603	2,187,388
Fiscal year 1959	3,384,381	971,077	2,413,304	1,843,677	569,627	8,924	73,181,900	2,757,015
Kerr-Philpott:								
Cumulative through fiscal year 1956	11,068,149	5,123,572	5,944,577	5,833,751	110,826	78,276,909	78,166,083	110,826
Fiscal year 1957	4,209,432	1,817,471	2,391,961	1,928,213	463,748	316,795	78,019,130	574,574
Fiscal year 1958	5,026,001	1,709,526	3,316,475	1,909,829	1,406,646	64,541	76,677,025	1,981,220
Fiscal year 1959	4,212,538	1,866,606	2,345,932	1,887,995	457,937	30,200	76,249,288	2,439,157
Old Hickory:								
Fiscal year 1957	127,846	138,509	(10,663)	37,112	(47,775)	8,906,806	8,954,581	(47,775)
Fiscal year 1958	1,551,891	225,313	1,326,578	632,600	693,978	23,830,794	32,091,397	646,203
Fiscal year 1959	1,480,996	232,571	1,248,425	801,999	446,426	[2](22,850)	31,622,121	1,092,629
Jim Woodruff:								
Fiscal year 1957	261,100	127,000	134,000	167,000	(32,900)	22,800,000	22,832,900	(32,900)
Fiscal year 1958	1,162,802	353,335	809,467	586,491	222,976	1,253,483	23,863,407	190,076
Fiscal year 1959	1,338,090	371,469	966,621	586,725	379,896	[2](788,815)	22,694,696	569,972
Buford:								
Fiscal year 1958	567,962	296,433	271,529	235,617	35,912	37,168,700	37,132,788	35,912
Fiscal year 1959	1,609,244	422,373	1,186,871	947,746	239,125	[2] 1,554,073	38,447,736	275,037
Totals, all projects:								
Cumulative through fiscal year 1956	43,598,941	11,126,741	32,472,200	23,771,019	8,701,181	280,892,195	272,191,014	8,701,181
Fiscal year 1957	13,869,473	3,711,879	10,157,594	6,496,226	3,661,368	32,512,222	301,041,868	12,362,549
Fiscal year 1958	19,092,533	4,450,528	14,642,005	7,671,693	6,970,312	62,792,494	356,864,050	19,332,861
Fiscal year 1959	15,118,395	4,877,777	10,240,618	8,440,411	1,800,207	[2] 978,731	356,042,574	21,133,068

[1] Includes revenue collected by Corps of Engineers and Federal Power Commission and credited to power.

[2] Includes adjustments to concur with cost allocation agreements during fiscal year 1959.

Source: Southeastern Power Administration, January 1960.

Average Annual Amortization by Projects [1]

Project:	*Average amortization required*
Cumberland (Dale Hollow, Center Hill, Wolf Creek)	$2,100,000
Allatoona	540,000
Clark Hill	1,550,000
Kerr-Philpott	1,710,000
Old Hickory-Cheatham	1,080,000
Jim Woodruff	520,000
Buford	870,000
Total, all projects	8,370,000

[1] The average annual power amortization, as indicated, is the amount necessary to repay the project investment over a 50-year period as well as provide for repayment of interim replacements over their service lives. It is not anticipated that this average amortization will be accomplished each year, for two reasons: (1) Gross revenues and, hence, revenues available for repayment are dependent upon the yearly water inflows, so that amortization accomplished is subject to variations from the average due to water conditions; (2) during the early portion of the repayment period, interest charges which are based on unamortized Federal investment are very high and amortization accomplished is much less than the average. In the later part of the repayment period, when unamortized investment is lower, interest charges are lower with a corresponding increase each year in amortization accomplished. Due to this interest variation over the repayment period, the amortization accomplished will vary from slightly over 1 percent of the investment in the early years to approximately 3.7 percent toward the end of the repayment period.

Project costs and revenues

[In thousands of dollars]

Project	Estimated average annual costs [1]	Year of estimate	Revenues [2]			
			Fiscal year 1957	Fiscal year 1958	Fiscal year 1959	Cumulative average [3]
Cumberland	$3,950	1955	$5,180	$5,650	$1,780	$4,330
Allatoona	1,110	1958	970	1,030	1,140	1,080
Clark Hill	3,320	1958	2,680	3,600	3,000	3,300
Kerr-Philpott	3,550	1954	2,980	4,000	3,080	2,850
Old Hickory	1,450	1958	----------	1,550	1,480	1,520
Jim Woodruff	1,020	1958	----------	1,000	1,170	1,080
Buford	1,600	1958	----------	----------	1,390	1,390

[1] Estimated average annual costs excluding wheeling and firming energy costs for the period beginning within year of estimate and extending for remainder of repayment period.
[2] Gross revenues less wheeling and firming energy costs. Full operational years only included.
[3] Averages are for the period beginning with the year of the cost estimates and extending through fiscal year 1959.

NOTE.—All years through 1957, except fiscal year 1951 for Allatoona and fiscal years 1956 and 1957 for Cumberland projects, have been years of less than average waterflows. Fiscal year 1958 was above average for all projects except Allatoona and Jim Woodruff. Fiscal year 1959 was below average waterflows for all projects. Years with higher than average waterflows during 50-year repayment period will compensate for reduced revenues resulting from low flows.

Project costs

Project	Estimated total construction costs	Operation and maintenance of power facilities [1]	Marketing costs
Wolf Creek	$78,940,000	$230,000	$13,000
Center Hill	44,380,000	180,000	7,000
Dale Hollow	25,940,000	190,000	5,000
Allatoona	31,150,000	157,000	19,000
Clark Hill	78,540,000	472,000	100,000
John H. Kerr	87,150,000	405,000	105,000
Philpott	13,340,000	81,000	12,000
Jim Woodruff	46,450,000	107,000	30,000
Old Hickory	48,250,000	221,000	15,000
Buford	43,600,000	154,000	25,000
Cheatham	30,240,000	126,000	10,000
Walter F. George	86,820,000	145,000	70,000
Hartwell	94,000,000	360,000	70,000
Barkley	182,000,000	224,000	50,000

[1] Does not include cost of purchased power and transmission charges.

Power produced in fiscal year 1959

	Installed generating capacity [1] (kilowatts)	Peak generation (kilowatts)	Energy (kilowatt-hours)
John H. Kerr	204,000	254,400	325,978,800
Philpott	14,000	16,520	18,510,720
Allatoona	74,000	90,200	116,987,300
Buford	86,000	106,000	127,741,300
Clark Hill	280,000	276,600	502,354,700
Jim Woodruff	30,000	36,000	225,234,000
Old Hickory	100,000	124,000	402,633,000
Dale Hollow	54,600	54,000	77,035,000
Center Hill	135,000	141,000	257,357,000
Wolf Creek	270,000	290,000	587,956,000
Cheatham [2]	12,000	23,000	81,571,000

[1] Nameplate rating of installed capacity.
[2] Not in commercial operation.

Average rate in mills per kilowatt-hour by customers, fiscal year 1959

	Allatoona, Buford	Clark Hill	Woodruff	Kerr, Philpott	Wolf Creek, Center Hill, Dale Hollow, Old Hickory, Cheatham
Private utility companies	(1)	(1)	3.74	14.77	----------
Rural electric cooperatives	7.01	7.01	8.76	7.02	----------
Local public systems	7.01	6.44	8.82	7.70	----------
Federal agencies	----------	----------	----------	----------	2.50

[1] Only nominal energy sales.

Estimated payments in fiscal year 1961 under netting of bills procedure [1] *(maximum coincidental cost year, 1931)*

TRANSACTIONS WITH CAROLINA POWER & LIGHT CO.

	C.P. & L. owes SEPA	SEPA owes C.P. & L.	Net payment by C.P. & L.	Net payment by SEPA
July	$26,940	$8,250	$18,690	
August	26,940	9,075	17,865	
September	26,940	9,075	17,865	
October	26,940	8,332	18,608	
November	26,940	8,168	18,772	
December	26,940	8,745	18,195	
January	26,940	8,085	18,855	
February	26,940	7,178	19,762	
March	26,940	7,425	19,515	
April	26,940	6,765	20,175	
May	26,940	8,002	18,938	
June	26,940	8,250	18,690	
Total	323,280	97,350	225,930	

TRANSACTIONS WITH GEORGIA POWER CO.

	Georgia Power owes SEPA	SEPA owes Georgia Power	Net payment by Georgia Power	Net payment by SEPA
July	$156,373	$70,555	$85,818	
August	156,373	70,555	85,818	
September	151,798	70,555	81,243	
October	96,898	70,555	26,343	
November	96,898	70,555	26,343	
December	124,348	70,555	53,793	
January	124,348	70,555	53,793	
February	96,898	70,555	26,343	
March	96,898	70,555	26,343	
April	96,898	70,555	26,343	
May	151,798	70,555	81,243	
June	156,373	70,555	85,818	
Total	1,505,901	846,660	659,241	

TRANSACTIONS WITH VIRGINIA ELECTRIC & POWER CO.

	VEPCO owes SEPA	SEPA owes VEPCO	Net payment by VEPCO	Net payment by SEPA
July	$95,280	$147,164		$51,884
August	102,763	137,773		35,010
September	99,219	125,641		26,422
October	90,613	140,593		49,980
November	89,818	133,987		44,169
December	94,970	140,275		45,305
January	96,004	133,320		37,316
February	90,809	127,503		36,694
March	92,169	135,061		42,892
April	90,330	131,180		40,850
May	95,292	131,907		36,615
June	93,143	130,415		37,272
Total	1,130,410	1,614,819		484,409

See footnote at end of table, p. 711.

Estimated payments in fiscal year 1961 under netting of bills procedvre [1]—Continued

TRANSACTIONS WITH FLORIDA POWER CORP.

	Florida Power owes SEPA	SEPA owes Florida Power	Net payment by Florida Power	Net payment by SEPA
July	$10,920	$16,743		$5,823
August	14,550	19,137		4,587
September	6,330	19,653		13,323
October	21,780	16,663	$5,117	
November	17,415	47,671		30,256
December	28,605	16,913	11,692	
January	38,850	14,980	23,870	
February	37,215	16,736	20,479	
March	34,680	15,440	19,240	
April	39,810	15,883	23,927	
May	40,440	14,210	26,230	
June	15,000	15,211		211
Total	305,595	229,240	130,555	54,200

[1] Tabulation relates only to transactions with companies and does not show revenue from preferred agencies as a result of wheeling and firming arrangements.

Rates for dependable capacity and energy

Customer	Project	Monthly demand charge per kilowatt	Energy charge per kilowatt-hour (in mills)	Estimated average energy costs (in mills)
Appalachian Electric Power Co	Philpott	$1.05	3.5, 2.0	8.9
Virginia Electric & Power Co	John H. Kerr	.90	4.5, 3.0	8.1
Preferred agencies in Virginia Electric & Power Co. area.	do	.90	4.5	6.7
Carolina Power & Light Co	do	.90	4.5, 3.0	13.1
Preferred agencies in Carolina Power & Light Co. area.	do	.90	4.5	[1] 7.0
Georgia Power Co	Allatoona, Buford & Clark Hill.	.915	2.96, 2.0	13.4
Preferred agencies in Georgia Power Co. area.	do	.915	3.56	[1] 6.0
South Carolina Public Service Authority.	Clark Hill	.75	4.0, 3.0 2.5, 2.0	6.3
Greenwood County Electric Power Commission.	do	.75	4.0, 2.0 2.5, 2.0	6.3
Florida Power Corp	Jim Woodruff	[2]	4.5, 3.0	3.8
Preferred agencies in Florida Power Corp. area.	do	1.70	4.5	8.8
Tennessee Valley Authority	Wolf Creek, Center Hill, Dale Hollow.	[3] 3,950,000		2.9
Do	Old Hickory and Cheatham	[3] 2,400,000	[4]	4.2

[1] Includes deficiency energy.
[2] No capacity purchased.
[3] Flat annual payment includes payment for all capacity and energy in projects. Base payment may be adjusted upward and downward depending on water conditions.
[4] An interim rate of 3 mills per kilowatt-hour is charged for Cheatham power produced prior to commercial operation of a power unit.

Source: Southeastern Power Administration, January 1960.

Revenues covered into Treasury (as of February 29, 1960)

Revenues to general fund	$95,869,366
Revenues to special fund	1,371,626
Total	97,240,992

Project generation and firming purchases

Project	1959		1958		1957	
	Project energy marketed	Firming purchased	Project energy marketed	Firming purchased	Project energy marketed	Firming purchased
Clark Hill	479,020,292		732,239,966		449,747,100	
John H. Kerr	295,467,239	158,288,761	554,614,139	115,354,392	313,655,966	162,432,818
Philpott	17,466,800		37,429,500		10,435,300	
Allatoona	217,349,383		139,891,157		113,083,000	
Buford					327,000	
Jim Woodruff	212,991,611		189,132,396		66,925,000	
Old Hickory	391,551,000		570,711,000		55,068,000	
Dale Hollow	66,930,000		139,482,000		116,327,000	
Center Hill	240,385,000		426,343,000		325,067,000	
Wolf Creek	555,163,000		1,103,611,000		932,762,000	
Cheatham	78,693,000		567,000			
Total	2,555,017,325	158,288,761	3,894,021,158	115,354,392	2,383,397,366	162,432,818

Sales to Tennessee Valley Authority

Year	Energy sold TVA	Total energy sold	Percent sold to TVA	Revenue from TVA	Total revenue	Percent revenue from TVA
1959	1,332,722,000	2,633,401,414	50.6	$3,332,288.00	$14,863,863.87	22.4
1958	2,240,714,000	3,753,501,748	59.7	7,181,194.05	19,006,631.67	37.8
1957	1,429,224,000	2,489,361,584	57.4	5,184,534.07	13,644,211.77	38.0
1956	1,369,940,000	2,188,463,401	62.6	5,070,000.00	11,444,558.33	44.3
1955	1,287,027,000	2,091,233,414	61.5	3,950,000.00	9,783,104.81	40.4
1954	770,821,000	1,625,764,772	47.4	1,523,300.00	7,931,023.22	19.2
1953	949,857,000	1,295,854,431	73.3	1,982,100.00	4,948,588.53	40.1
1952	1,419,327,200	1,601,942,200	88.6	4,147,600.00	5,276,935.50	78.6
1951	476,485,700	587,493,700	81.1	1,552,500.00	2,458,469.50	63.1
1950	160,814,800	196,264,800	81.9	785,700.00	1,033,881.07	76.0
1949	94,096,600	94,096,600	100.0	295,700.00	295,700.00	100.0

Total appropriations

Total amount of appropriations through fiscal year 1960	$13,861,625
Amount returned to Treasury—recissions	4,098,914
Balance	9,762,711

Actual Corps of Engineers' operation and maintenance expenses allocated to power

Year	Dale Hollow, Center Hill, Wolf Creek	Allatoona	Clark Hill	Kerr-Philpott	Old Hickory	Jim Woodruff	Buford
1949	$83,273						
1950	136,625	$68,700					
1951	267,342	139,294					
1952	456,608	100,935					
1953	572,323	145,996	$112,355	$163,185			
1954	554,914	150,012	287,607	543,502			
1955	592,566	138,904	385,953	453,002			
1956	622,700	133,526	365,330	489,783			
1957	569,976	149,265	360,879	529,831	$129,997	$38,425	
1958	600,353	160,737	405,258	607,757	204,151	140,602	$156,018
1959 [1]	621,588	163,189	514,522	642,919	221,902	170,648	175,360

[1] 1959 total, $2,510,128.

PROJECT COSTS AND REVENUES

Mr. FENTON. Will you furnish for the record the estimated average cost of power per kilowatt-hour for each plant for whose power output you are the marketing agency?

Mr. LEAVY. Yes, sir, that can be done.

Mr. FENTON. And for the same plant will you show for the record the estimated average revenues per kilowatt-hour for the energy expected to be produced by each of these plants?

Mr. LEAVY. That can be furnished; yes, sir.

(The information requested follows:)

Estimated average annual cost and revenue per kilowatt-hour by projects

Project	Average annual cost per kilowatt-hour	Average annual revenue per kilowatt-hour
	Mills	*Mills*
Upper Cumberland (Dale Hollow, Center Hill, Wolf Creek)	2.9	2.9
Allatoona	8.6	9.0
Buford	10.3	10.5
Clark Hill	5.3	5.7
Kerr-Philpott [1]	7.7	7.7
Jim Woodruff	6.0	6.7
Old Hickory-Cheatham	4.0	4.2

[1] Includes costs and sales of firming energy.

REVENUE ESTIMATES

Mr. FENTON. What is the explanation for the considerable difference between fiscal year 1959 actual and fiscal 1960 and fiscal year 1961 estimated power revenue shown on page 6?

Mr. LEAVY. The estimated revenues for 1960 and 1961 are based upon average water conditions, and to the extent that water conditions are poorer or better than average the actual revenue will vary.

In 1959 the water conditions were poorer than average and therefore the reduction in revenue is due to the water condition.

This year we suspect that the actual revenues will be somewhat greater than our estimate, but it is rather close to the estimate now and we have not actually revised it.

Mr. FENTON. Off the record.

(Discussion held off the record.)

Mr. FENTON. That is all, Mr. Chairman.

Mr. CANNON. The committee will stand adjourned until 10 o'clock tomorrow.

TUESDAY, MARCH 8, 1960.

SOUTHWESTERN POWER ADMINISTRATION

WITNESSES

D. G. WRIGHT, ADMINISTRATOR
F. G. FISTER, ASSISTANT ADMINISTRATOR
E. D. CONDER, BUDGET OFFICER

CONSTRUCTION

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. Construction in progress	$1,023,955	$285,725	
2. New construction and additions		858,000	$1,325,000
Total obligations	1,023,955	1,143,725	1,325,000
Financing:			
Unobligated balance brought forward	−1,309,680	−285,725	
Unobligated balance carried forward	285,725		
Appropriation (new obligational authority)		858,000	1,325,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	8	9	10
Full-time equivalent of all other positions	3	3	5
Average number of all employees	11	12	15
Number of employees at end of year	8	9	10
Average GS grade and salary	8.0 $6,592	8.0 $6,458	8.0 $6,521
Average salary of ungraded positions	$4,984	$5,271	$5,292
01 Personal services:			
Permanent positions	$58,369	$81,318	$66,118
Positions other than permanent	16,787	19,662	26,552
Other personal services	3,323	2,020	2,330
Total personal services	78,479	103,000	95,000
02 Travel	12,585	13,000	15,000
03 Transportation of things	3,918	4,000	4,500
04 Communication services		500	500
06 Printing and reproduction	3,097	4,000	5,000
07 Other contractual services	20,061	23,225	25,000
08 Supplies and materials	296,137	300,000	315,000
09 Equipment	197,532	177,500	205,000
10 Lands and structures	409,027	514,500	655,000
11 Grants, subsidies, and contributions	3,119	4,000	5,000
Total obligations	1,023,955	1,143,725	1,325,000

Operation and Maintenance

Program and financing

	1959 actual	1960 estimate	1961 estimate
Program by activities:			
1. System operation and maintenance	$1,313,521	$1,368,764	$1,474,500
2. Power contracts and rates	84,809	91,231	98,300
3. General administration	360,713	365,004	393,200
Total program costs	1,759,043	1,825,019	1,966,000
4. Unfunded adjustments to total operating costs: Depreciation included above (−)	−702,364	−710,000	−720,000
Total program costs, funded	1,056,679	1,115,019	1,246,000
5. Relation of costs to obligations:			
Costs financed from obligations of other years, net (−)	−25,468		
Obligations incurred for costs of other years, net		6,231	4,000
Total program (obligations)	1,031,211	1,121,250	1,250,000
Financing:			
Unobligated balance no longer available	39		
Appropriation (new obligational authority)	1,031,250	1,121,250	1,250,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	127	148	151
Full-time equivalent of all other positions	7		7
Average number of all employees	124	134	157
Number of employees at end of year	141	148	165
Average GS grade and salary	8.0 $6,592	8.0 $6,458	8.0 $6,521
Average salary of ungraded positions	$4,984	$5,271	$5,292
01 Personal services:			
Permanent positions	$710,363	$820,096	$914,603
Positions other than permanent	19,495		20,000
Other personal services	31,531	32,154	30,397
Total personal services	761,389	852,250	965,000
02 Travel	103,953	107,000	107,000
03 Transportation of things	1,772	1,500	2,000
04 Communication services	23,521	22,000	22,000
05 Rents and utility services	17,486	17,000	18,000
06 Printing and reproduction	6,269	6,000	6,000
07 Other contractual services	25,860	24,000	36,500
08 Supplies and materials	39,487	39,000	40,000
09 Equipment	4,552	4,500	4,500
11 Grants, subsidies, and contributions	42,673	44,000	45,000
13 Refunds, awards, and indemnities	1,877	2,000	2,000
15 Taxes and assessments	2,372	2,000	2,000
Total obligations	1,031,211	1,121,250	1,250,000

CONTINUING FUND

Amounts available for appropriation

	1959 actual	1960 estimate	1961 estimate
Unappropriated balance at beginning of year	$11,702,912	$10,303,358	$6,595,358
Receipts	1,700,036	1,292,000	1,942,000
Total available for appropriation	13,402,948	11,595,358	8,537,358
Appropriation (−)	−3,154,640	−5,000,000	−5,000,000
Return of prior year appropriations	55,050		
Unappropriated balance at end of year	10,303,358	6,595,358	3,537,358

PROGRAM AND FINANCING

Program by activities:			
1. Purchase of energy and wheeling charges	$8,369,593	$9,991,000	$9,903,000
2. Rentals for use of transmission facilities	1,185,039	1,480,000	1,465,000
3. Emergency expense	15,000		
Total program (costs—obligations)	9,570,632	11,471,000	11,368,000
Financing:			
Unobligated balance brought forward	−300,000	−300,000	−300,000
Advances and reimbursements from non-Federal sources	−6,415,992	−6,471,000	−6,368,000
Unobligated balance carried forward	300,000	300,000	300,000
New obligational authority	3,154,640	5,000,000	5,000,000
New obligational authority:			
Appropriation:			
Current indefinite	3,139,640	5,000,000	5,000,000
Permanent indefinite	15,000		

NOTE.—Reimbursements from non-Federal sources result from sale of power and are applied against charges for purchase of energy and wheeling by customers of the Administration.

Object classification

		1959 actual	1960 estimate	1961 estimate
	Full-time equivalent of all other positions	2		
	Average number of all employees	2		
	Number of employees at end of year	0		
01	Personal services:			
	Permanent positions	$598		
	Positions other than permanent	6,690		
	Total personal services	7,288		
02	Travel	2,680		
07	Other contractual services	9,555,632	$11,471,000	$11,368,000
08	Supplies and materials	5,032		
	Total obligations	9,570,632	11,471,000	11,368,000

Mr. CANNON. The committee will come to order.

Mr. Wright, we are certainly glad to see you here for several reasons, especially because you are back on the job again.

We take up for consideration this morning the budget for the Southwestern Power Administration and we have with us today Mr. Douglas G. Wright, the Administrator.

We would be glad to have a statement from you, Mr. Administrator.

General Statement

Mr. Wright. Thank you, Mr. Chairman.

Mr. Chairman and gentlemen of the committee, the budget estimate of the Southwestern Power Administration for its total program in the fiscal year 1961, is $7,575,000.

The budget estimate for the "Construction" appropriation of $1,325,000 provides for construction of a substation adjacent to the Table Rock powerplant, increased capacity in present substation facilities at Clinton and Doniphan and/or Idalia in Missouri, modification of load control equipment at the Springfield, Mo., substation, modernization of VHF radio equipment and for general plant and equipment.

The budget estimate for "Operation and maintenance" is $1,250,000, which will enable the Administration to operate and maintain its transmission system, carry on power marketing negotiations, provide customer services, and administer power sales and exchange contracts between the Administration and its power customers, and other electric systems.

The budget estimate for the continuing fund of $5 million is requested for the purchase of power and service or wheeling charges, and for the leasing of transmission capacity under contractual agreements with certain generating and transmission cooperatives.

With the committee's permission, I would like to discuss some of the phases and details of the overall program, and also submit supporting data concerning it.

I would like to divide this discussion into three main groups.

First, I would like to talk briefly with the committee about what we have done and I would like to discuss our budget estimate very briefly. Then, I would like to discuss with the committee some of the problems of the future which I believe this committee should take into consideration.

I have presented to the committee clerk already a folder which is numbered 1 through 13, and I would ask that these exhibits be placed in the record, Mr. Chairman, as they are the type of information which the committee has evidenced interest in each year and which give history and reflect our operations.

Mr. Cannon. Very well, Mr. Wright.

Obligations, Carryovers and Savings, 1960

Mr. Wright. The first one of these tabulations shows the "Construction," "Operation and maintenance," and "Continuing fund" appropriations for the past year.

(The tabulation referred to follows:)

1960 fiscal year appropriations—Estimated obligations, carryover and savings

Construction:	
1960 appropriation	$858,000
Carryover balance, June 30, 1959	285,725
Total available	1,143,725
Estimated obligations, 1960	1,143,725
Estimated carryover balance, June 30, 1960	0
Operation and maintenance:	
1960 appropriation	1,121,250
Estimated obligations, 1960	1,121,250
Estimated savings	0
Continuing fund:	
1960 appropriation	5,000,000
Estimated obligations	4,000,000
Estimated savings	1,000,000
Emergency fund	300,000
Estimated obligations	45,000
Balance, June 30, 1960	255,000
Amount to be transferred to fund as of June 30, 1960	45,000
Available as of July 1, 1960	300,000

CONTINUING FUND SAVINGS

Mr. WRIGHT. This tabulation reflects what you gave us last year. You will note with considerable interest I am sure that in the continuing fund provided last year of $5 million, our water conditions and other things were such that we had to expend only $4 million for the purchase of power and the leasing of transmission facilities as well as $45,000 for emergency clearing of brush under our transmission lines. Therefore, a $955,000 savings was achieved in the continuing fund last year.

Mr. CANNON. That is very good.

Mr. WRIGHT. You see, we must ask in that fund, Mr. Chairman, for enough money to cover power purchases as though we were facing a fairly critical water year. If we have a better water year than that, then we do not expend funds for power purchases which would be necessary in a dry year.

TOTAL FUNDS APPROPRIATED

Now, Mr. Chairman, I would like to offer the following tabulation for the record.

(The tabulation referred to follows:)

Appropriations from inception through current fiscal year

Construction appropriations (net):		
Fiscal years 1947 through 1960		$29,458,000
Add: 1950 operation and maintenance savings, transferred to and merged with construction appropriation		257,913
Adjusted appropriations		29,715,913
Less:		
Transfer to operation and maintenance appropriation	$775,000	
Returned to Treasury	1,702,743	2,477,743
Net appropriations		27,238,170
Operation and maintenance appropriations (net):		
Fiscal years 1944 through 1960		14,159,212
Add: Transfers from other appropriations and agencies	$797,731	
Less: Transfers to other appropriations and agencies	707,065	
Net transfers		90,666
Adjusted appropriations		14,249,878
Less: Returned to Treasury		1,577,072
Net appropriations		12,672,806

Mr. WRIGHT. This exhibit, Mr. Chairman, shows the total construction appropriation to date and shows that of that total appropriation $775,000 was transferred to O. & M. appropriations by committee action or by a congressional act, and $1,700,000 of it was returned to the Treasury in savings. This is since the start of our operations.

Of the $29,715,913 which Congress has provided us from our inception until now for construction, we have expended $27,238,170, which is our total capital investment.

The next item is Operation and Maintenance where you have provided us with $14,159,212 from the start of our operations, and we have transfers from other agencies, of $797,731. We have transferred money to other agencies of $707,065. Therefore, our total funds available have been $14,249,878 and we have had savings of $1,577,072, or we have saved better than 10 percent of our O. & M. appropriations since our existence.

We have spent $12,672,806.

Mr. CANNON. That is a fine feature of your report.

Mr. WRIGHT. Thank you.

CONTINUING FUND

Now, Mr. Chairman, I would like to offer for the record the tabulation on the continuing fund.

(The tabulation referred to follows:)

Continuing fund

Congressional authorizations, inception to June 30, 1960:		
Purchase of energy and wheeling charges, and rentals for use of transmission facilities		$29,255,000
Less: Balance of authorization not required, returned to special account:		
Actual to June 30, 1959	$6,956,929	
Estimate, 1960	1,000,000	
		7,956,929
Estimated net authorizations to June 30, 1960 (expenditures)		21,298,071
Emergency fund, maintained at $300,000:		
Expenditures to June 30, 1959	$107,634	
Estimate, 1960	45,000	
Expenditures from emergency fund		152,634
Total expenditures to June 30, 1960		21,450,705

RECEIPTS FROM SALE OF POWER

Deposited to special account:		
Actual to June 30, 1959	$53,740,017	
Estimate, 1960	8,225,000	
		61,965,017
Less:		
Transferred to U.S. Treasury	34,985,954	
Transferred to continuing fund	21,450,705	
		56,436,659
Estimated balance in special account, June 30, 1960		5,528,358

Mr. WRIGHT. In the continuing fund appropriation, from the start until now, we have had a total of $29,255,000 and we did not require of that $7,956,929. Therefore, our estimated net appropriations for the continuing fund have been $21,298,071. In effect, that is saying that you have authorized us to expend out of revenues for the payment of transmission charges, the payment of balancing off charges and the payment of power purchases since we have started in business, $21,298,071.

EMERGENCY EXPENDITURES

The total emergency expenditures out of this continuing fund have been $152,634; of that $45,000 occurred this year. This committee will recall that 2 years ago I pointed out that we had been operating on a very rock bottom budget for 2 or 3 years and were willing to do that because of the difficulty of the financial situation in budgeting, but in doing it we were taking a chance with regard to the growth of underbrush under our transmission lines. We had a very wet year the year before last and trees grew under our transmission lines as much as 5 and 6 feet in one year. When we began to burn out the tops of these trees with 161,000 volts, we decided we had an emergency and were liable to create extensive forest fires and, perhaps, kill a lot of people. We asked the Secretary to approve the use of money out of the continuing fund for the clearing of this underbrush.

I have brought pictures with me of the lines which I would be happy to show the committee of the type of brush that we experienced, Mr. Chairman. That [indicating] is the type of stuff that grew up under those transmission lines due to the wet year and we had to get in there and clear it out. Some of those conductors actually burned out the tops of the trees.

Mr. CANNON. It is now clear?

Mr. WRIGHT. Yes, sir, we have it under control now.

RECEIPTS

You will notice that receipts from the sale of power at the bottom of that page total $61,965,017.

There have been transferred to the Treasury out of those receipts $34,985,954. There was transferred to the continuing fund $21,450,705 and there is $5,528,358 in the account now that we expect to transfer into the continuing fund to provide this year's authorization in the event the Congress grants it.

There is also available $5 million for transfer to the Treasury.

Mr. Chairman, I would like to now offer for the record the next tabulation.

(The tabulation referred to follows:)

Appropriations

Construction to June 30, 1960 (net)	$27,238,170
Operation and maintenance to June 30, 1960 (net)	12,672,806
Net appropriations from U.S. Treasury	39,910,976
Continuing fund, appropriations from receipt account to June 30, 1960 (net)	21,450,705
Total appropriations (net to Southwestern Power Administration inception to June 30, 1960)	61,361,681

RECEIPTS

Deposits to special account from inception to June 30, 1960	61,965,017
Transfer of receipts to U.S. Treasury, inception to June 30, 1960	34,985,954

Mr. WRIGHT. This tabulation, Mr. Chairman, is simply a summation of the information that I have of appropriations and receipts together on the same page and is a repetition of the figures I have just given you.

GENERATION AND SALE OF POWER

Now, Mr. Chairman, I would like to offer for the record tabulation No. 5.

(The tabulation referred to follows:)

Tabulation of net generation available for sale, fiscal year 1959

	Kilowatt-hours
Hydrogeneration project:	
Norfolk	208,768,800
Denison	109,352,000
Narrows	25,181,220
Bull Shoals	488,146,000
Fort Gibson	161,297,700
Tenkiller Ferry	106,710,700
Whitney	37,678,000
Blakely Mountain	175,753,000
	4,478,000
	[1] 171,275,000
Table Rock	10,220,000
Total hydrogeneration	1,318,629,420
Thermal generation:	
Central Electric Power Cooperative	94,797,000
N. W. Electric Power Cooperative	245,057,000
Western Farmers Electric Cooperative	214,622,000
Total thermal generation	554,476,000
Total generation	1,873,105,420
All other purchases and withdrawals	151,833,188
Total generation available for sale	2,024,938,608

[1] Amount received from Arkansas Power & Light Co., Blakely Mountain contract.

Sales by class of customer, fiscal year 1959

	Sales (kilowatt-hours)	Percentage of kilowatt-hours available for sale
Municipalities	172,118,218	8.50
Cooperatives	1,296,578,811	64.03
Other government authorities	41,471,799	2.05
Private utilities	10,493,170	.52
A.P. & L. Co. (Reynolds)	403,138,000	19.91
Total sales	1,923,799,998	95.01
Losses, meter discrepancies, inadvertent flow and adjustments	101,138,610	4.99
Total generation	2,024,938,608	100.0

Mr. WRIGHT. This tabulation, Mr. Chairman, shows information that was requested by the committee each year so we have added it as a normal part of our presentation. It shows the production by dams of energy during fiscal year 1959.

You will notice that we had a total availability of 2,024,938,608 kilowatt-hours, and I particularly want you to look down at the bottom of that page because that shows you who got that power last year and where it was sold. We take our hats off to nobody in the United States on this one.

Municipalities got 8.50 percent; cooperatives 64.03 percent; other government authorities, 2.05 and private utilities about one-half of 1 percent. The Arkansas Power & Light Co. and the Reynolds Aluminum Co. got 19.91 percent.

The total sales were 95.01 percent of all the power generated. We had a total system loss of 4.99 percent. You will find no record like this in any other system that I know of.

Mr. CANNON. That is a very comprehensive statement.

HYDREGENERATION

Mr. WRIGHT. The next tabulation, Mr. Chairman, I would like to offer for the record.

(The tabulation referred to follows:)

TABULATION OF HYDROGENERATION FOR INTERCONNECTED SYSTEM AND BY PROJECT FROM DATE OF COMMERCIAL OPERATION TO JUNE 30, 1958, FOR FISCAL YEAR 1959, AND TOTAL TO JUNE 30, 1959

Interconnected system

Project:	*Date of commercial operation*
Norfolk (Arkansas)	Mar. 6, 1945.
Denison (Oklahoma-Texas)	Mar. 10, 1945.
Bull Shoals (Arkansas)	Sept. 29, 1952.
Fort Gibson (Oklahoma)	Apr. 11, 1953.
Tenkiller Ferry (Oklahoma)	Nov. 16, 1953.
Table Rock (Missouri)	June 1, 1959.

[Kilowatt-hours]

	Gross generation	Station service	Net generation
From date of commercial operation to June 30, 1958	8,658,830,840	67,911,840	8,590,919,000
Fiscal year 1959	1,093,559,370	9,064,170	1,084,495,200
Total	9,752,390,210	76,976,010	9,675,414,200
Norfork (Arkansas):			
Mar. 6, 1945, to June 30, 1958	2,473,059,740	18,602,240	2,454,457,500
Fiscal year 1959	210,152,800	1,384,000	208,768,800
Total	2,683,212,540	19,986,240	2,663,226,300
Denison (Oklahoma-Texas):			
Mar. 10, 1945, to June 30, 1958	2,530,523,200	22,407,200	2,508,116,000
Fiscal year 1959	111,435,270	2,083,270	109,352,000
Total	2,641,958,470	24,490,470	2,617,468,000
Narrows (Arkansas):			
July 1, 1950, to June 30, 1958	277,354,300	4,194,380	273,159,920
Fiscal year 1959	25,745,200	563,980	25,181,220
Total	303,099,500	4,758,360	298,341,140
Bull Shoals (Arkansas):			
Sept. 29, 1952, to June 30, 1958	2,893,947,500	18,105,500	2,875,842,000
Fiscal year 1959	491,721,000	3,575,000	488,146,000
Total	3,385,668,500	21,680,500	3,363,988,000
Fort Gibson (Oklahoma):			
Apr. 11, 1953, to June 30, 1958	442,444,900	6,068,800	436,376,100
Fiscal year 1959	162,496,000	1,198,300	161,297,700
Total	604,940,900	7,267,100	597,673,800
Tenkiller Ferry (Oklahoma):			
Nov. 16, 1953, to June 30, 1958	318,855,500	2,728,100	316,127,400
Fiscal year 1959	107,219,000	508,300	106,710,700
Total	426,074,500	3,236,400	422,838,100
Whitney (Texas):			
June 1, 1955, to June 30, 1958	221,036,910	2,740,000	218,296,910
Fiscal year 1959	38,588,000	910,000	37,678,000
Total	259,624,910	3,650,000	255,974,910
Blakely Mountain (Arkansas):			
Sept. 15, 1955, to June 30, 1958	466,661,000	4,294,000	462,367,000
Fiscal year 1959	177,245,000	1,492,000	175,753,000
Total	643,906,000	5,786,000	638,120,000
Table Rock (Missouri): Fiscal year 1959 (June 1 to 30, 1959)	10,535,300	315,300	10,220,000

Mr. WRIGHT. This tabulation, Mr. Chairman, shows the production of power by dams since the inception of those projects which was never asked for by the committee for several years and we are providing it.

You will find a summary in tabulation No. 7 which shows that since 1945 the interconnected system of the Southwest Power Administration has generated a total of 9,675,414,200 kilowatt-hours.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. WRIGHT. Now, Mr. Chairman, I would like to submit for the record, tabulation No. 7.

(The tabulation referred to follows:)

TABULATION OF HYDROGENERATION FOR INTERCONNECTED SYSTEM AND BY PROJECT, FROM DATE OF COMMERCIAL OPERATION TO JUNE 30, 1959, BY FISCAL YEAR

Interconnected System

Project:	*Date of commercial operation*
Norfolk (Arkansas)	Mar. 6, 1945
Denison (Oklahoma-Texas)	Mar. 10, 1945
Bull Shoals (Arkansas)	Sept. 29, 1952
Fort Gibson (Oklahoma)	Apr. 11, 1953
Tenkiller Ferry (Oklahoma)	Nov. 16, 1953
Table Rock (Missouri)	June 1, 1959

[Kilowatt-hours]

Fiscal year	Gross generation	Station service	Net generation
1945	205, 028, 260	691, 960	204, 336, 300
1946	421, 347, 620	2, 012, 120	419, 335, 500
1947	445, 726, 380	2, 354, 380	443, 372, 000
1948	310, 224, 120	2, 675, 120	307, 549, 000
1949	353, 915, 050	3, 068, 050	350, 847, 000
1950	443, 809, 090	3, 483, 890	440, 325, 200
1951	464, 884, 580	2, 715, 480	462, 169, 100
1952	485, 120, 510	3, 635, 310	481, 485, 200
1953	526, 434, 140	4, 869, 740	521, 564, 400
1954	751, 875, 500	8, 198, 500	742, 677, 000
1955	538, 465, 600	8, 188, 100	530, 277, 500
1956	810, 920, 430	8, 663, 930	802, 256, 500
1957	1, 143, 324, 600	8, 586, 200	1, 134, 738, 400
1958	1, 758, 754, 969	8, 769, 069	1, 749, 985, 900
1959	1, 093, 559, 370	9, 064, 170	1, 084, 495, 200
Total			9, 675, 414, 200

Project and date of commercial operation

NORFOLK (ARKANSAS,) MAR. 6, 1945

[Kilowatt-hours]

Fiscal year	Gross generation	Station service	Net generation
1945	102, 959, 350	326, 350	102, 633, 000
1946	175, 705, 600	808, 600	174, 897, 000
1947	197, 017, 590	1, 208, 590	195, 809, 000
1948	143, 235, 400	1, 285, 400	141, 950, 000
1949	186, 804, 300	1, 365, 300	185, 439, 000
1950	267, 615, 400	1, 684, 200	265, 931, 200
1951	209, 222, 500	1, 639, 400	207, 583, 100
1952	340, 595, 100	1, 669, 900	338, 925, 200
1953	128, 283, 400	1, 484, 400	126, 799, 000
1954	134, 222, 800	1, 470, 100	132, 752, 700
1955	25, 135, 000	1, 392, 000	23, 743, 000
1956	106, 882, 600	1, 380, 800	105, 501, 800
1957	205, 745, 500	1, 462, 000	204, 283, 500
1958	249, 635, 200	1, 425, 200	248, 210, 000
1959	210, 152, 800	1, 384, 000	208, 768, 800
Total			2, 663, 226, 300

Project and date of commercial operation—Continued

DENISON (OKLAHOMA-TEXAS) MAR. 10, 1945

[Kilowatt-hours]

Fiscal year	Gross generation	Station service	Net generation
1945	102,068,910	365,610	101,703,300
1946	245,642,020	1,203,520	244,438,500
1947	248,708,790	1,145,790	247,563,000
1948	166,988,720	1,389,720	165,599,000
1949	167,110,750	1,702,750	165,408,000
1950	176,193,690	1,799,690	174,394,000
1951	255,662,080	1,076,080	254,586,000
1952	144,525,410	1,965,410	142,560,000
1953	94,345,540	1,937,540	92,408,000
1954	194,284,200	1,856,000	192,428,200
1955	142,073,500	1,922,500	140,151,000
1956	199,044,130	2,055,130	196,989,000
1957	146,436,800	1,934,800	144,502,000
1958	247,438,660	2,052,660	245,386,000
1959	111,435,270	2,083,270	109,352,000
Total			2,617,468,000

NARROWS (ARKANSAS), JULY 1, 1950

1951	29,894,400	505,990	29,388,410
1952	43,011,600	484,670	42,526,930
1953	47,923,100	504,200	47,418,900
1954	18,340,100	566,090	17,774,010
1955	29,766,300	533,320	29,232,980
1956	21,725,500	566,960	21,158,540
1957	40,354,800	533,600	39,821,200
1958	46,338,500	499,550	45,838,950
1959	25,745,200	563,980	25,181,220
Total			298,341,140

BULL SHOALS (ARKANSAS), SEPT. 29, 1952

1953	271,419,900	1,177,900	270,242,000
1954	337,822,500	3,161,500	334,661,000
1955	244,289,000	3,172,000	241,117,000
1956	390,199,700	3,555,700	386,644,000
1957	654,929,300	3,457,300	651,472,000
1958	995,287,100	3,581,100	991,706,000
1959	491,721,000	3,575,000	488,146,000
Total			3,363,988,000

FORT GIBSON (OKLAHOMA), APR. 11, 1953

1953	32,385,300	269,900	32,115,400
1954	40,739,000	1,241,800	39,497,200
1955	71,811,600	1,112,100	70,699,500
1956	75,870,000	1,113,100	74,756,900
1957	73,781,000	1,191,100	72,589,900
1958	147,858,000	1,140,800	146,717,200
1959	162,496,000	1,198,300	161,297,700
Total			597,673,800

TENKILLER FERRY (OKLAHOMA), NOV. 16, 1953

1954	43,807,000	469,100	43,337,900
1955	55,156,500	589,500	54,567,000
1956	38,924,000	559,200	38,364,800
1957	62,432,000	541,000	61,891,000
1958	118,536,000	569,300	117,966,700
1959	107,219,000	508,300	106,710,700
Total			422,838,100

Project and date of commercial operation—Continued

WHITNEY (TEXAS), JUNE 1, 1955

[Kilowatt-hours]

Fiscal year	Gross generation	Station service	Net generation
1955	15,385,910	55,000	15,330,910
1956	49,495,000	907,000	48,588,000
1957	72,019,000	867,000	71,152,000
1958	84,137,000	911,000	83,226,000
1959	38,588,000	910,000	37,678,000
Total			255,974,910

BLAKELY MOUNTAIN (ARKANSAS), SEPT. 15, 1955

1956	67,500,000	1,368,000	66,132,000
1957	220,652,000	1,393,000	219,259,000
1958	178,509,000	1,533,000	176,976,000
1959	177,245,000	1,492,000	175,753,000
Total			638,120,000

TABLE ROCK (MISSOURI), JUNE 1, 1959

1959	10,535,300	315,300	10,220,000

Mr. WRIGHT. We have given the committee a summary by fiscal years of the total power generated and the power used in the powerplants which is not salable and is included in part of the loss of each project in our system. That is just information that we believe might be necessary and essential to the committee if you were analyzing any particular project.

SALES AND REVENUE

Getting down to tabulation No. 8, Mr. Chairman, I would like to offer it for the record.

(The tabulation referred to follows:)

Total kilowatt-hour sales and revenue, fiscal year 1945 through fiscal year 1959

	Kilowatt-hours	Revenue	Mills per kilowatt-hour average on Government transmission grid
Total firm and secondary sales	[1] 12,817,465,521	$70,080,284.40	5.47
Less secondary energy and excess capacity sales	2,546,398,770	3,445,635.26	1.35
Total, all firm sales	10,271,066,751	66,634,649.14	6.49
Total firm sales to preferred customers	6,599,330,298	40,624,391.23	6.16
Total firm sales to companies	3,671,736,453	26,010,257.91	7.08
Less firm Aluminum contract sales	1,687,346,900	8,867,803.88	5.26
Total other company firm sales	1,984,389,553	17,142,454.03	8.64

[1] Includes 2,522,851,121 kilowatt-hours of purchased and withdrawn power.

Summary of sales to Texas Power & Light Co.

	Prior to contract No. Ispa-177	Contract No. Ispa-177		
		Fiscal year 1948 through fiscal year 1958	Fiscal year 1959	Total
Sales:	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*
Hydro energy to company:				
Primary energy	283, 624, 661	855, 389, 810	69, 999, 000	925, 388, 810
Secondary energy	277, 370, 377	381, 733, 500	0	381, 733, 500
Total energy	560, 995, 038	1, 237, 123, 310	69, 999, 000	1, 307, 122, 310
Continuous available energy from company to Government customers	0	610, 319, 620	106, 979, 394	717, 299, 014
Revenue:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Texas Power & Light Co., gross	1, 750, 471. 50	6, 986, 181. 02	644, 043. 00	7, 630, 224. 02
Preferred customers, gross	0	3, 472, 259. 98	718, 302. 61	4, 190, 562. 59
Total, gross	1, 750, 471. 50	10, 458, 441. 00	1, 362, 345. 61	11, 820, 786. 61
Less purchased power	0	3, 503, 418. 27	737, 051. 23	4, 240, 469. 50
Net contract revenue	1, 750, 471. 50	6, 955, 022. 73	625, 294. 38	7, 580, 317. 11

Summary of sales to Oklahoma utility companies

	Prior to contract No. Ispa-356	Contract No. Ispa-356		
		Fiscal year 1951 through fiscal year 1958	Fiscal year 1959	Total
Sales:	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*
Hydro energy to company:				
Primary energy	163, 643, 448	701, 714, 476	136, 054, 650	837, 769, 126
Secondary energy	34, 791, 484	127, 556, 604	0	127, 556, 604
Total energy	198, 434, 932	829, 271, 080	136, 054, 650	965, 325, 730
Continuous available energy from company to Government Customers	0	791, 682, 879	190, 190, 825	981, 873, 704
Revenue:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Oklahoma utility companies, gross	1, 087, 324. 40	1, 552, 207. 66	1, 360, 546. 50	2, 912, 754. 16
Preferred customers, gross	0	4, 660, 869. 46	1, 361, 513. 20	6, 022, 382. 66
Total, gross	1, 087, 324. 40	6, 213, 077. 12	2, 722, 059. 70	8, 935, 136. 82
Less purchased power	0	1, 944, 450. 23	1, 738, 636. 14	3, 683, 086. 37
Net contract revenue	1, 087, 324. 40	4, 268, 626. 89	983, 423. 56	5, 252, 050. 45

	Prior to A.P. & L. aluminum contract	Arkansas Power & Light Co. aluminum contract		
		Fiscal year 1954 through fiscal year 1958	Fiscal year 1959	Total
Sales:	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*
Hydroenergy to company:				
Primary energy	1, 178, 555, 826	1, 327, 346, 900	360, 000, 000	1, 687, 346, 900
Secondary energy	686, 429, 929	500, 714, 500	43, 138, 000	543, 852, 500
Total energy	1, 864, 985, 755	1, 828, 061, 400	403, 138, 000	[1] 2, 231, 199, 400
Revenue:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Primary energy	7, 072, 009. 17	6, 920, 203. 88	1, 965, 600. 00	8, 867, 803. 88
Secondary energy	856, 944. 95	625, 893. 13	53, 922. 50	679, 815. 63
Total revenue	7, 928, 954. 12	7, 528, 097. 01	2, 019, 522. 50	9, 547, 619. 51
Company to Reynolds Metals Co., kilowatt-hours		4, 166, 417, 000	972, 410, 000	5, 138, 827, 000

[1] 217,653,100 kilowatt-hours deferred as to purchase and delivery, remains deferred at end of fiscal year 1959.

Summary of sales to Southwestern Electric Power Co. (Narrows)

	Prior to contract No. Ispa-396	Contract No. Ispa-396		
		Fiscal year 1951 through fiscal year 1958	Fiscal year 1959	Total
Sales:	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*
Hydro energy to company:				
Primary energy	12,912,350	134,075,690	18,400,000	152,475,69
Secondary energy	5,513,600	121,215,460	6,706,800	127,922,2
Total energy	18,425,950	255,291,150	25,106,800	280,397,9
Continuous available energy from company to Government customers	0	138,470,174	23,103,000	161,573,174
Revenue:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Southwestern Electric Power Co. (Narrows), gross	93,695.64	1,518,715.44	207,000.00	1,725,715.44
Preferred customers, gross	0	777,564.99	157,451.46	935,016.45
Total, gross	93,695.64	2,296,280.43	364,451.46	2,660,731.9
Less purchased power and wheeling	0	846,583.89	140,685.60	987,269.4
Net contract revenue	93,695.64	1,449,696.54	223,765.86	1,673,462.4

Summary of sales to Southwestern Electric Power Co. (interconnected system)

[redacted]	Contract No. 14-02-001-782		
	Last 7 months, fiscal year 1958	Fiscal year 1959	Total
Sales:	*Kilowatt-hours*	*Kilowatt-hours*	*Kilowatt-hours*
Hydro energy to company:			
Primary energy	4,116,000	7,717,200	11,833,20
Secondary energy	8,566,000	2,765,000	11,331,00
Total energy	12,682,000	10,482,200	23,164,20
Continuous available energy from company to Government customers	5,235,080	9,809,689	15,044,76
Revenue:	*Dollars*	*Dollars*	*Dollars*
Southwestern Electric Power Co. (interconnected system), gross	54,681.00	81,371.10	136,052.10
Preferred customers, gross	35,953.40	66,250.00	102,203.4
Total, gross	90,634.40	147,621.10	238,255.5
Less purchased power	39,329.80	73,817.51	113,147.3
Net contract revenue	51,304.60	73,803.59	125,108.19

96		
	Total	
	Kilowatt-hours	
	152,475,60	
	127,922,2	
	280,397,9	
	161,573,174	
	Dollars	
	1,725,715.44	
	935,016.45	
	2,660,731.89	
	987,269.49	
	1,673,462.40	
system)		
01-782		
	Total	
	Kilowatt-hours	
	11,833,20	
	11,331,00	
	23,164,20	
	15,044,769	
	Dollars	
	136,052.10	
	102,203.40	
	238,255.50	
	113,147.31	
	125,108.19	

SUMMARY TABLE

FINANCIAL OPERATION STUDY FOR EXAMINATION OF A
FROM POWER REVENUES FOR INTEGRATED SYSTEM OF
(Continued)

Year of Study		Fiscal Year	Total Revenue	Operating Expenses: 1/Hydro Projects Operation and Maintenance	1/Hydro Projects Replacements	SPA Expenses 2/Purchased Power	SPA Expenses 3/Service Charge	SPA Expenses 4/All Other	G & T Cooperatives 5/Transmission Charge	G & T Cooperatives Purchased Power	Total
			$	$	$	$	$	$	$	$	$
		1944	8,510	0	0			0			0
		1945	634,960	115,925	0			154,585			270,5
9/1		1946	1,254,989	225,778	19,030			89,626			334,4
2		1947	1,456,219	250,436	↓			94,833			364,2
3		1948	1,517,189	279,632	↓			117,770			416,4
4		1949	1,661,132	223,521	↓			121,045			363,5
5		1950	2,034,948	349,485	↓			254,919			623,4
6		1951	2,113,494	336,865	38,060			545,649			920,7
7		1952	2,436,178	341,401	↓	7,109	55,901	909,349			1,351,8
8		1953	2,743,529	453,045	↓	38,842	102,311	1,087,758			1,720,0
9		1954	4,483,344	769,996	106,710	364,762	493,936	1,137,820			2,873,2
10		1955	3,794,243	783,405	125,860	1,174,595	642,383	839,502			3,565,7
11		1956	7,538,730	821,037	↓	62,796	216,715	795,646	2,557,906	3,367,111	7,947,0
	EST.	1957	8,449,665	1,019,770	150,860	194,828	558,971	967,189	2,752,592	3,664,560	9,308,7
12	ACTUAL	1957	8,188,825	890,297	149,880	181,306	584,590	872,278	2,962,826	3,474,834	9,116,0
	DIFFERENCE		-260,840	-129,473	-980	-13,522	25,619	-94,911	210,234	-189,726	-192,7
	EST.	1958	11,588,140	1,019,770	150,860	595,190	254,642	1,011,845	2,752,592	3,719,520	9,504,4
13	ACTUAL	1958	13,711,149	1,047,479	150,860	1,219,241	190,337	916,556	4,168,367	3,356,315	11,049,
	DIFFERENCE		2,123,009	27,709	0	624,051	-64,305	-95,289	1,415,775	-363,205	1,544,
	EST.	1959	12,557,446	1,019,770	150,860	737,430	275,496	1,014,999	2,752,592	3,719,520	9,670,
14	ACTUAL	1959	14,738,975	1,068,893	150,860	2,557,008	124,007	996,520	3,537,406	3,556,240	11,990,
	DIFFERENCE		2,181,529	49,123	0	1,819,578	-151,489	-18,479	784,814	-163,280	2,320,
15		1960	14,559,907	1,180,770	190,860	80,000	292,158	1,020,531		2,894,700	8,411,
16		1961	15,184,457	↓	↓	↓	↓	1,022,023		3,392,700	8,911,
17	10/1	1962	17,467,357	1,237,770	238,860	↓	↓	1,022,950	↓	3,465,780	9,090,
18	2	1963	↓	↓	↓	↓	↓	↓	↓	↓	↓
19	3	1964	↓	↓	↓	↓	↓	↓	↓	↓	↓
20	4	1965	↓	↓	↓	↓	↓	↓	↓	↓	↓
21	5	1966	↓	↓	↓	↓	↓	↓	↓	↓	↓
22	6	1967	↓	↓	↓	↓	↓	↓	↓	↓	↓
23	7	1968	↓	↓	↓	↓	↓	↓	↓	↓	↓
24	8	1969	↓	↓	↓	↓	↓	↓	↓	↓	↓
25	9	1970	17,505,857	↓	↓	↓	↓	↓	↓	↓	↓
26	10	1971	↓	↓	↓	↓	↓	↓	↓	↓	↓
27	11	1972	↓	↓	↓	↓	↓	↓	↓	↓	↓
28	12	1973	16,818,062	↓	↓	1,243,050	↓	1,031,755	↓	3,934,200	10,730,
29	13	1974	17,181,209	↓	↓	661,525	↓	1,026,745	↓	3,700,095	9,909,
30	14	1975	17,544,357	↓	↓	80,000	↓	1,022,950	↓	3,465,780	9,090,
31	15	1976	↓	↓	↓	↓	↓	↓	↓	↓	↓
32	16	1977	↓	↓	↓	↓	↓	↓	↓	↓	↓
33	17	1978	↓	↓	↓	↓	↓	↓	↓	↓	↓
34	18	1979	↓	↓	↓	↓	↓	↓	↓	↓	↓
35	19	1980	↓	↓	↓	↓	↓	↓	↓	↓	↓
36	20	1981	↓	↓	↓	↓	↓	↓	↓	↓	↓
37	21	1982	↓	↓	↓	↓	↓	↓	↓	↓	↓
38	22	1983	↓	↓	↓	↓	↓	↓	↓	↓	↓
39	23	1984	↓	↓	↓	↓	↓	↓	1,042,115	↓	7,379,
40	24	1985	17,377,397	↓	↓	↓	↓	↓	↓	↓	↓
41	25	1986	↓	↓	↓	↓	↓	↓	↓	↓	↓
42	26	1987	↓	↓	↓	↓	↓	↓	↓	↓	↓
43	27	1988	↓	↓	↓	↓	↓	↓	↓	↓	↓
44	28	1989	↓	↓	↓	↓	↓	↓	↓	↓	↓
45	29	1990	↓	↓	↓	↓	↓	↓	↓	↓	↓
46	30	1991	↓	↓	↓	↓	↓	↓	↓	↓	↓
47	31	1992	↓	↓	↓	↓	↓	↓	↓	↓	↓
48	32	1993	17,035,427	↓	↓	1,822,050	↓	1,031,755	↓	3,934,200	9,598,
49	33	1994	17,206,412	↓	↓	951,025	↓	1,026,745	↓	3,700,095	8,488,
50	34	1995	17,377,397	↓	↓	80,000	↓	1,022,950	↓	3,465,780	7,379,
51	35	1996	↓	↓	↓	↓	↓	↓	↓	↓	↓
52	36	1997	↓	↓	↓	↓	↓	↓	↓	↓	↓
53	37	1998	↓	↓	↓	↓	↓	↓	↓	↓	↓
54	38	1999	↓	↓	↓	↓	↓	↓	↓	↓	↓
55	39	2000	↓	↓	↓	↓	↓	↓	↓	↓	↓
56	40	2001	↓	↓	↓	↓	↓	↓	↓	↓	↓
57	41	2002	↓	↓	↓	↓	↓	↓	↓	↓	↓
58	42	2003	↓	↓	↓	↓	↓	↓	↓	↓	↓
59	43	2004	↓	↓	↓	↓	↓	↓	↓	↓	↓
60	44	2005	↓	↓	↓	↓	↓	↓	↓	↓	↓
61	45	2006	↓	↓	↓	↓	↓	↓	↓	↓	↓
62	46	2007	↓	↓	↓	↓	↓	↓	↓	↓	↓
63	47	2008	↓	↓	↓	↓	↓	↓	↓	↓	↓
64	48	2009	↓	↓	↓	↓	↓	↓	↓	↓	↓
65	49	2010	↓	↓	↓	↓	↓	↓	↓	↓	↓
66	50	2011	↓	↓	↓	↓	↓	↓	↓	↓	↓

1/ Corps of Engineers power production expenses.
2/ Oklahoma Utility Companies; M & A Electric Power Cooperative; G & T Cooperatives other than lease and power cont of Springfield, Missouri.
3/ Oklahoma Utility Companies; M & A Electric Power Cooperative; G & T Cooperatives other than lease and power cont
4/ Transmission operation and maintenance, general administration and power marketing applicable to the integrated
5/ Transmission rentals, operation and maintenance, general administration and replacements.
6/ 2.5% (no amortization) on power production plant held for future use.
7/ Power production and SPA transmission investments.
8/ Power production and SPA transmission investments and SPA transmission replacements scheduled by FPC account nu average service life.
9/ Commencement of amortization for first units added to the integrated system, each investment amortized within 5 placed in service.
10/ Commencement of 50 years amortization period for last investments placed at Bull Shoals Dam and Table Rock Dam.
11/ First two units added to system at Table Rock in FY 1959 in limited commercial operation 6/1/59. Fir allocation report not completed as of 6/30/59. Allocation for two power units, subject to adjustment future date, estimated at $47,586,000, based on tentative cost allocation report of 9/17/58. Invest last two units estimated at $8,068,000. Investment of $630,667 added to transmission facilities.

ARY TABLE I

ATION OF AVERAGE RATE AND INVESTMENT REPAYMENT
SISTEM OF SOUTHWESTERN POWER ADMINISTRATION
ontinued)

Total	Net Revenue	Interest 2.5%	6/Interest 2.5%	Principal	7/In Service At End Of Year	8/Added During Year	Balance to be Repaid	Allowable Unpaid Balance	Fiscal Year
$	$	$	$	$	$	$	$	$	
0	8,510	0	0	8,510	0	0	-8,510		1944
270,510	364,450	0	0	364,450	0	21,324,126	20,951,166		1945
334,434	920,555	523,779	82,750	314,026	21,324,126	0	20,637,140	21,324,126	1946
364,299	1,091,920	515,929	↓	493,241	↓	0	20,143,899	↓	1947
416,432	1,100,757	503,597		514,410		0	19,629,489		1948
363,596	1,297,536	490,737		724,049		0	18,905,440		1949
623,434	1,411,514	472,636		856,128		10,116,124	28,165,436		1950
920,774	1,192,720	704,136	59,800	428,784	31,440,250	8,416,710	36,153,362	31,440,250	1951
1,351,820	1,084,358	903,834	↓	120,724	39,856,960	1,748,650	37,781,288	39,856,960	1952
1,770,016	1,023,513	944,532		19,181	41,605,610	66,785,547	104,547,654	41,605,610	1953
2,873,224	1,610,120	2,613,691	147,250	-1,150,821	108,391,157	14,632,477	120,330,952	108,391,157	1954
3,565,745	228,498	3,008,274		-2,927,026	123,023,634	5,457,184	128,715,162	123,023,634	1955
7,947,071	-408,341	3,217,879		-3,773,470	128,480,818	26,764,574	159,273,206	128,480,818	1956
9,308,770	-859,105	3,981,830	147,250	-4,988,185	155,265,392	1,380,672	165,642,063	155,265,392	1957
9,116,011	-927,186	3,981,830	147,250	-5,056,266	155,265,392	765,968	165,095,440	155,265,392	1957
-192,759	-68,081	0	0	-68,081	0	-614,704	-546,623	0	DIF.
9,504,419	2,083,721	4,141,052	147,250	-2,204,581	156,646,064	1,380,000	169,226,644	156,646,064	1958
11,049,155	2,661,994	4,127,386	147,250	-1,612,642	156,031,360	537,885	167,245,967	156,031,360	1958
1,544,736	578,273	-13,666	0	591,939	-614,704	-842,115	-1,980,677	-614,704	DIF.
9,670,667	2,886,779	4,230,666	195,000	-1,538,887	158,026,064	53,487,000	224,252,531	158,026,064	1959
11,990,934	2,748,041	4,181,149	147,250	-1,560,358	156,569,245	11/ 48,216,667	217,042,992	156,569,245	1959
2,320,267	-138,738	-49,517	-47,750	-41,471	-1,456,819	-5,270,333	-7,209,539	-1,456,819	DIF.
8,411,611	6,148,296	5,606,313	↓	346,983	211,513,064	0	223,505,548	211,513,064	1960
8,911,103	6,273,354	5,597,639		480,715	↓	16,153,386	239,578,219	↓	1961
9,090,110	8,377,247	5,989,455	107,500	2,280,292	227,329,064	47,603	237,345,530	227,329,064	1962
↓	↓	5,933,638	↓	2,336,109	↓	65,162	235,074,583	↓	1963
		5,876,865		2,392,882		-129,757	232,551,944		1964
		5,813,799		2,455,948		-73,458	230,022,538		1965
		5,750,563		2,519,184		4,066	227,507,420		1966
		5,687,686		2,582,061		19,080	224,944,439		1967
		5,623,611		2,646,136		0	222,298,303		1968
		5,557,458		2,712,289		0	219,586,014		1969
	8,415,747	5,489,650		2,816,597		130,457	216,897,674		1970
	↓	5,422,447		2,885,800		413,680	214,425,754		1971
10,730,385	6,087,677	5,300,644		2,947,603		92,005	211,570,156		1972
9,909,745	7,271,464	5,289,254		890,923		71,835	210,951,068		1973
9,090,110	8,454,247	5,273,777		1,890,187		-187,032	208,873,849		1974
↓	↓	5,221,846		3,124,901		-91,245	205,857,703		1975
		5,141,443		3,205,304		13,602	202,466,001		1976
		5,061,550		3,285,097		37,779	199,218,683		1977
		4,980,467		3,366,280		55,377	195,907,780		1978
		4,897,695		3,449,052		565,433	193,028,161		1979
		4,825,604		3,521,143		788,987	190,292,005		1980
		4,757,300		3,589,447		2,041,428	188,743,966		1981
		4,718,600		3,628,147		100,718	185,216,557		1982
		4,630,414		3,716,333		4,972,630	186,472,854		1983
7,379,633	10,164,724	4,661,821		5,395,403		2,140,642	183,218,093		1984
↓	9,997,764	4,580,452		5,309,812		1,050,547	176,988,828		1985
	↓	4,474,721		5,415,543		633,049	174,206,334		1986
		4,355,158		5,535,106		1,077,909	169,749,137		1987
		4,243,728		5,646,536		23,218	164,125,869		1988
		4,103,147		5,787,117		431,898	158,770,650		1989
		3,969,266		5,920,998		117,676	152,967,328		1990
		3,924,183		6,066,081		582,137	147,483,384		1991
		3,687,085		6,203,179		66,044	141,346,249		1992
9,598,908	7,436,519	3,533,656		3,795,363		40,117	137,591,003		1993
8,488,768	8,717,644	3,439,775		5,170,369		-137,235	132,283,399		1994
7,379,633	9,997,764	3,307,085		6,583,179		-80,810	125,619,410	206,004,938	1995
↓	↓	3,140,485		6,749,779		40,117	118,909,748	↓	1996
		2,972,744		6,917,520		24,817	112,017,045		1997
		2,800,426		7,089,838		47,120	104,974,327		1998
		2,624,358		7,265,906		9,557	97,717,978		1999
		2,442,949		7,447,315		96,442	90,367,105	195,888,814	2000
		2,259,173		7,631,086		1,112,052	83,848,071	187,472,104	2001
		2,096,202		7,794,062		94,155	76,148,164	185,723,454	2002
		1,903,704		7,986,560		264,855	68,426,459	118,937,907	2003
		1,710,661		8,179,603		126,282	60,373,138	104,305,430	2004
		1,509,328		8,380,936		-23,063	51,969,139	98,548,246	2005
		1,299,228		8,591,036		68,263	43,446,386	72,063,672	2006
		1,086,160		8,804,104		101,405	34,743,687	70,683,000	2007
		868,592		9,021,672		137,310	25,859,325	69,303,000	2008
		646,483		9,243,781		126,072	16,741,616	15,516,000	2009
		418,540		9,471,724		2,016	7,271,908	↓	2010
		181,798		9,708,466		0	-2,436,558	0	2011

power contracts; City

power contracts.
integrated system.

account numbers and

d within 50 years after

Rock Dam.

/59. Firm cost
adjustment at a
. Investment for
ities.

53784 O - 58 pt 2 (Face p. 7291) No. 2

Year of Study		Fiscal Year	Sales of Ele 1/Firm Hydro	2/Firm Purchased	3/F Wit
		1944	0	0	
		1945	73,375,754	0	
10/1		1946	199,983,677	0	
2		1947	245,164,500	0	
3		1948	258,695,703	0	
4		1949	280,527,300	0	
5		1950	298,003,119	0	
6		1951	289,629,882	0	
7		1952	328,252,662	1,777,231	3,9
8		1953	345,412,658	9,710,459	4,4
9		1954	646,119,911	74,353,907	3,8
10		1955	443,295,705	192,922,153	32,2
11		1956	659,497,331	596,242,845	23,2
	EST.	1957	806,100,000	685,000,000	34,
12	ACTUAL	1957	836,959,259	551,855,892	39,
	DIFFERENCE		30,859,259	-133,144,108	5,
	EST.	1958	873,100,000	796,500,000	42,
13	ACTUAL	1958	1,367,854,566	163,824,000	63,
	DIFFERENCE		494,754,566	-612,676,000	20,
	EST.	1959	994,100,000	829,800,000	43,
14	ACTUAL	1959	1,079,106,112	607,375,760	94,
	DIFFERENCE		85,006,112	-222,424,240	51,
15		1960	1,615,200,000	419,700,000	44,9
16		1961	1,615,200,000	575,500,000	44,9
17	11/1	1962	1,716,800,000	601,200,000	44,9
18	2	1963			
19	3	1964			
20	4	1965			
21	5	1966			
22	6	1967			
23	7	1968			
24	8	1969			
25	9	1970			
26	10	1971			
27	11	1972			
28	12	1973	1,197,000,000	966,000,000	89,9
29	13	1974	1,456,900,000	783,600,000	67,4
30	14	1975	1,716,800,000	601,200,000	44,9
31	15	1976			
32	16	1977			
33	17	1978			
34	18	1979			
35	19	1980			
36	20	1981			
37	21	1982			
38	22	1983			
39	23	1984			
40	24	1985			
41	25	1986			
42	26	1987			
43	27	1988			
44	28	1989			
45	29	1990			
46	30	1991			
47	31	1992			
48	32	1993	1,197,000,000	1,076,000,000	89,
49	33	1994	1,456,900,000	838,700,000	67,4
50	34	1995	1,716,800,000	601,200,000	44,9
51	35	1996			
52	36	1997			
53	37	1998			
54	38	1999			
55	39	2000			
56	40	2001			
57	41	2002			
58	42	2003			
59	43	2004			
60	44	2005			
61	45	2006			
62	46	2007			
63	47	2008			
64	48	2009			
65	49	2010			
66	50	2011			

SUMMARY TABLE NO. I

FINANCIAL OPERATION STUDY FOR EXAMINATION OF AVERAGE RATE AN
FROM POWER REVENUES FOR INTEGRATED SYSTEM OF SOUTHWESTERN

Electric Energy (Kilowatt-hours)				Sale of Capacity (Kilowatts)					
3/Firm Withdrawn	Firm Total	Secondary and Dump Hydro	Total	4/Firm Service	5/Peaking (2400 hrs.)	6/Peaking (1800 hrs.)	7/Peaking (Other)	Peaking (No energy)	
0	0	3,664,112	3,664,112						
0	73,375,754	126,556,996	199,932,750						
0	199,983,677	221,091,123	421,074,800						
0	245,164,500	200,980,500	446,145,000						
0	258,695,703	46,776,000	307,471,703						
0	280,527,300	70,329,900	350,857,200						
0	298,003,119	130,447,863	428,450,982						
0	289,629,882	169,295,413	458,925,295						
3,966,519	333,996,412	162,373,744	496,370,156						
4,437,186	359,960,303	152,316,702	511,877,005						
3,830,452	724,305,270	49,689,200	773,993,470						
32,220,224	668,437,754	46,557,100	714,995,182						
23,252,536	1,360,182,922	41,188,260	1,414,112,822						
34,700,000	1,525,800,000	85,500,000	1,611,300,000	178,100	219,100	0	30,000	0	427
39,808,951	1,428,624,102	328,405,685	1,757,029,787	185,900	205,762	0	35,000	0	426
5,108,951	-97,175,898	242,905,685	145,729,787	7,800	-13,338	0	5,000	0	
42,300,000	1,711,900,000	126,200,000	1,838,100,000	215,950	215,000	0	30,000	0	460
63,036,934	1,614,715,500	431,143,823	2,045,859,323	221,183	150,000	74,200	35,000	0	480
20,736,934	-97,184,500	304,943,823	207,759,323	5,233	-65,000	74,200	5,000	0	19
43,600,000	1,867,500,000	192,300,000	2,059,800,000	244,400	220,000	0	30,000	0	494
94,683,258	1,781,165,130	74,949,898	1,856,115,028	260,798	150,000	80,801	35,000	0	526
51,083,258	-86,334,870	-117,350,102	-203,684,972	16,398	-70,000	80,801	5,000	0	32
44,900,000	2,079,800,000	266,600,000	2,346,400,000	254,150	225,000	83,000		0	592
44,900,000	2,235,600,000	266,600,000	2,502,200,000	303,400	225,000	33,750		0	592
44,900,000	2,362,900,000	243,500,000	2,606,400,000	305,400	225,000	98,600		63,200	726
89,900,000	2,252,900,000	44,800,000	2,297,700,000		0	173,600	180,000		
67,400,000	2,307,900,000	144,100,000	2,452,000,000		0	173,600	180,000		
44,900,000	2,362,900,000	243,500,000	2,606,400,000		225,000	98,600	30,000		
					75,000	298,600		13,200	
89,900,000	2,362,900,000	44,800,000	2,407,700,000		0	373,600			
67,400,000	2,363,000,000	144,100,000	2,507,100,000		0	298,600			
44,900,000	2,362,900,000	243,500,000	2,606,400,000		75,000				

1/ Includes primary, and secondary fuel savi
2/ From G & T Cooperatives and other sources
3/ Under Texas Power & Light and Oklahoma Uti
4/ Customers taking full load factor require
5/ Oklahoma Utility Companies and Aluminum C
6/ Other peaking sales; and Oklahoma Utility
7/ Texas Power & Light Company; and Aluminum
8/ Sales to Utility Companies and under Alumi
9/ Aluminum Contract revenue adjusted to aver
beginning 1957 (see Cost Allocation Repo
10/ Commencement of amortization for first un
11/ Commencement of 50 years amortization peri

SUMMARY TABLE NO. I

FINANCIAL OPERATION STUDY FOR EXAMINATION OF AVERAGE RATE AND INVEST
FROM POWER REVENUES FOR INTEGRATED SYSTEM OF SOUTHWESTERN POWER AD

Sales of Electric Energy (Kilowatt-hours)					Sale of Capacity (Kilowatts)					
sed	3/Firm Withdrawn	Firm Total	Secondary and Dump Hydro	Total	4/Firm Service	5/Peaking (2400 hrs.)	6/Peaking (1800 hrs.)	7/Peaking (Other)	Peaking (No energy)	Total
	0	0	3,664,112	3,664,112						
	0	73,375,754	126,556,996	199,932,750						
	0	199,983,677	221,091,123	421,074,800						
	0	245,164,500	200,980,500	446,145,000						
	0	258,695,703	48,776,000	307,471,703						
	0	280,527,300	70,329,900	350,857,200						
	0	298,003,119	130,447,863	428,450,982						
	0	289,629,882	169,295,413	458,925,295						
,231	3,966,519	333,996,412	162,373,744	496,370,156						
,459	4,437,186	359,460,303	152,316,702	511,877,005						
,907	3,830,452	728,304,270	49,689,200	773,993,470						
,153	32,220,224	668,437,754	46,557,100	714,995,182						
,845	23,252,536	1,360,182,922	41,188,260	1,414,112,822						
,000	34,700,000	1,525,800,000	85,500,000	1,611,300,000	178,100	219,100	0	30,000	0	427,200
,892	39,808,951	1,428,624,102	328,405,685	1,757,029,787	185,900	205,762	0	35,000	0	426,662
,108	5,108,951	-97,175,898	242,905,685	145,729,787	7,800	-13,338	0	5,000	0	-538
,000	42,300,000	1,711,900,000	126,200,000	1,838,100,000	215,950	215,000	0	30,000	0	460,950
,000	63,036,934	1,614,715,500	431,143,823	2,045,859,323	221,183	150,000	74,200	35,000	0	480,383
,000	20,736,934	-97,184,500	304,943,823	207,759,323	5,233	-65,000	74,200	5,000	0	19,433
,000	43,600,000	1,867,500,000	192,300,000	2,059,800,000	244,400	220,000	0	30,000	0	494,400
,760	94,683,258	1,781,165,130	74,949,898	1,856,115,028	260,798	150,000	80,801	35,000	0	526,599
,240	51,083,258	-86,334,870	-117,350,102	-203,684,972	16,398	-70,000	80,801	5,000	0	32,199
,000	44,900,000	2,079,800,000	266,600,000	2,346,400,000	254,150	225,000	83,000		0	592,150
,000	44,900,000	2,235,600,000	266,600,000	2,502,200,000	303,400	225,000	33,750		0	592,150
,000	44,900,000	2,362,900,000	243,500,000	2,606,400,000	305,400	225,000	98,600		63,200	722,200
,000	89,900,000	2,252,900,000	44,800,000	2,297,700,000		0	173,600	180,000		
,000	67,400,000	2,307,900,000	144,100,000	2,452,000,000		0	173,600	180,000		
,000	44,900,000	2,362,900,000	243,500,000	2,606,400,000		225,000	98,600	30,000		
						75,000	298,600		13,200	
,000	89,900,000	2,362,900,000	44,800,000	2,407,700,000		0	373,600			
,000	67,400,000	2,363,000,000	144,100,000	2,507,100,000		0	298,600			
,000	44,900,000	2,362,900,000	243,500,000	2,606,400,000		75,000				

1/ Includes primary, and secondary fuel saving.
2/ From G & T Cooperatives and other sources.
3/ Under Texas Power & Light and Oklahoma Utility Co
4/ Customers taking full load factor requirements (n
5/ Oklahoma Utility Companies and Aluminum Contract
6/ Other peaking sales; and Oklahoma Utility Companie
7/ Texas Power & Light Company; and Aluminum Contrac
8/ Sales to Utility Companies and under Aluminum Con
9/ Aluminum Contract revenue adjusted to average tra
beginning 1957 (see Cost Allocation Report of Ap
10/ Commencement of amortization for first units adde
11/ Commencement of 50 years amortization period for

ESTMENT REPAYMENT
ADMINISTRATION

SOUTHWESTERN POWER ADMINISTRATION

Comparison of Energy Sales, Operating Revenues and Expenses, and Capital Repayment Actual Fiscal Years 1957, 1958 and 1959 Compared with Estimated as Shown in the Repayment and Average Rate Determination Study of October 1956 for the Integrated System

		Operating Revenue								
Non-firm	4/Firm	8/Secondary and Dump	5/Peaking (2400 hrs.)	6/Peaking (1500 hrs.)	7/Peaking (Other)	Peaking (No hrs.)	Capacity Non-firm	9/Revenue Adjustments	Total
	$	$	$	$	$	$	$	$	$
									8,510
									634,960
Companies Contracts.									1,254,989
(normally in excess of 50%).									1,456,219
ct during normal water years. Aluminum Contract terminated 1985.									1,517,189
anies during adverse water years.									1,661,132
ract during adverse water years. Aluminum Contract terminated 1985.									2,034,948
Contract.									2,113,494
transmission line rate commencing 1958 and downstream benefits due to Blakely Mountain Project									2,436,178
April 1956).									2,743,529
dded to the integrated system, each investment amortized witnin 50 years after placed in service.									4,483,344
or last investments placed at Bull Shoals Dam and Table Rock Dam.									3,794,243
									7,538,730
20,000	4,744,260	14,500	2,974,385	0	623,520	0	18,000	75,000	8,449,665
16,468	4,936,387	351,940	2,359,620	0	530,503	0	10,375	0	8,188,825
-3,532	192,127	337,440	-614,765	0	-93,017	0	-7,625	-75,000	-260,840
20,000	6,430,258	49,250	3,159,198	0	758,434	0	18,000	1,173,300	11,588,140
35,000	6,514,765	556,124	1,872,000	1,945,613	999,794	0	64,874	1,757,979	13,711,149
15,000	84,507	506,874	-1,287,198	1,945,613	241,360	0	46,874	584,679	2,123,009
4,250	7,252,159	112,000	3,258,028	0	758,434	0	3,825	1,173,000	12,557,446
5,900	7,417,302	102,838	1,965,600	2,865,533	1,362,301	0	10,217	1,015,184	14,738,975
1,650	165,143	-9,162	-1,292,428	2,865,533	603,867	0	6,392	-157,816	2,181,529
0	7,568,068	209,400	3,544,205	1,494,000		0	0	985,800	14,559,907
0	9,079,018	209,400	3,544,205	607,600		0	0	985,800	15,184,457
16,300	9,136,018	270,000	3,544,205	1,774,840		910,040	88,020	985,800	17,467,357
			↓					↓	
			3,637,805					892,200	
		308,500	3,684,605					845,400	17,505,857
		↓	↓					↓	↓
0		18,725	0	3,259,845	2,285,934		0	1,207,500	16,818,062
16,300		182,862	0	3,259,845	2,645,384		44,010	1,003,050	17,181,209
		347,000	3,731,405	1,774,840	758,434		88,020	798,600	17,544,357
			↓					↓	
			3,778,205					751,800	
		270,000	1,485,005	5,374,840		190,080		75,000	17,377,397
		↓	↓	↓				↓	↓
0		16,050	0	6,859,845			0		17,035,427
16,300		143,100	0	6,859,845			43,935		17,206,412
		270,000	1,485,005	5,374,840			88,020		17,377,397
		↓	↓	↓	↓	↓	↓	↓	↓

Year of Study		Fiscal Year	Total Revenue	Operating Expenses: 1/Hydro Projects Operation and Maintenance	1/Hydro Projects Replacements	SPA Expenses: 2/Purchased Power	SPA Expenses: 3/Service Charge	SPA Expenses: 4/All Other	G & T Cooperatives: 5/Transmission Charge	G & T Cooperatives: Purchased Power	
			$	$	$	$	$	$	$	$	
		1944	8,510	0	0			0			
		1945	634,960	115,925	0			154,585			
9/1		1946	1,254,989	225,778	19,030			89,626			
2		1947	1,456,219	250,436	↓			94,833			
3		1948	1,517,189	279,632				117,770			
4		1949	1,661,132	223,521				121,045			
5		1950	2,034,948	349,485				254,919			
6		1951	2,113,494	336,865	38,060			545,849			
7		1952	2,436,178	341,401	↓	7,109	55,901	909,349			
8		1953	2,743,529	453,045		38,842	102,311	1,087,758			
9		1954	4,483,344	769,996	106,710	364,762	493,936	1,137,820			
10		1955	3,794,243	783,405	125,860	1,174,595	642,383	839,502			
11		1956	7,538,730	821,037	↓	62,796	216,715	795,646	2,557,906	3,367,111	
	EST.	1957	8,449,665	1,019,770	150,860	194,828	558,971	967,189	2,752,592	3,664,560	9
12	ACTUAL	1957	8,188,825	890,297	149,880	181,306	584,590	872,278	2,962,826	3,474,834	9
	DIFFERENCE		-260,840	-129,473	-980	-13,522	25,619	-94,911	210,234	-189,726	
	EST.	1958	11,588,140	1,019,770	150,860	595,190	254,642	1,011,845	2,752,592	3,719,520	9
13	ACTUAL	1958	13,711,149	1,047,479	150,860	1,219,241	190,337	916,556	4,168,367	3,356,315	11
	DIFFERENCE		2,123,009	27,709	0	624,051	-64,305	-95,289	1,415,775	-363,205	1
	EST.	1959	12,557,446	1,019,770	150,860	737,430	275,496	1,014,999	2,752,592	3,719,520	9
14	ACTUAL	1959	14,738,975	1,068,893	150,860	2,557,008	124,007	996,520	3,537,406	3,556,240	11
	DIFFERENCE		2,181,529	49,123	0	1,819,578	-151,489	-18,479	784,814	-163,280	2
15		1960	14,559,907	1,180,770	190,860	80,000	292,158	1,020,531		2,894,700	
16		1961	15,184,457	↓	↓			1,022,023		3,392,700	
17	10/1	1962	17,467,357	1,237,770	238,860			1,022,950		3,465,780	
18	2	1963									
19	3	1964									
20	4	1965									
21	5	1966									
22	6	1967									
23	7	1968									
24	8	1969									
25	9	1970	17,505,857								
26	10	1971									
27	11	1972									
28	12	1973	16,818,062			1,243,050		1,031,755		3,934,200	1
29	13	1974	17,181,209			661,525		1,026,745		3,700,095	
30	14	1975	17,544,357			80,000		1,022,950		3,465,780	
31	15	1976									
32	16	1977									
33	17	1978									
34	18	1979									
35	19	1980									
36	20	1981									
37	21	1982									
38	22	1983									
39	23	1984							1,042,115		
40	24	1985	17,377,397								
41	25	1986									
42	26	1987									
43	27	1988									
44	28	1989									
45	29	1990									
46	30	1991									
47	31	1992									
48	32	1993	17,035,427			1,822,050		1,031,755		3,934,200	
49	33	1994	17,206,412			951,025		1,026,745		3,700,095	
50	34	1995	17,377,397			80,000		1,022,950		3,465,780	
51	35	1996									
52	36	1997									
53	37	1998									
54	38	1999									
55	39	2000									
56	40	2001									
57	41	2002									
58	42	2003									
59	43	2004									
60	44	2005									
61	45	2006									
62	46	2007									
63	47	2008									
64	48	2009									
65	49	2010									
66	50	2011									

1/ Corps of Engineers power production expenses.

2/ Oklahoma Utility Companies; M & A Electric Power Cooperative; G & T Cooperatives other than lease and pow of Springfield, Missouri.

3/ Oklahoma Utility Companies; M & A Electric Power Cooperative; G & T Cooperatives other than lease and pow

4/ Transmission operation and maintenance, general administration and power marketing applicable to the inte

5/ Transmission rentals, operation and maintenance, general administration and replacements.

6/ 2.5% (no amortization) on power production plant held for future use.

7/ Power production and SPA transmission investments.

8/ Power production and SPA transmission investments and SPA transmission replacements scheduled by FPC acco average service life.

9/ Commencement of amortization for first units added to the integrated system, each investment amortized wi placed in service.

10/ Commencement of 50 years amortization period for last investments placed at Bull Shoals Dam and Table Roc

11/ First two units added to system at Table Rock in FY 1959 in limited commercial operation 6/1/59. allocation report not completed as of 6/30/59. Allocation for two power units, subject to adju future date, estimated at $47,586,000, based on tentative cost allocation report of 9/17/58. last two units estimated at $8,068,000. Investment of $630,667 added to transmission facilitie

SUMMARY TABLE I

R EXAMINATION OF AVERAGE RATE AND INVESTMENT REPAYMENT
TEGRATED SYSTEM OF SOUTHWESTERN POWER ADMINISTRATION
(Continued)

sed r	Total	Net Revenue	Interest 2.5%	6/Interest 2.5%	Principal	7/In Service At End Of Year	8/Added During Year	Balance to be Repaid	Allowable Unpaid Balance	Fiscal Year
	$	$	$	$	$	$	$	$	$	
	0	8,510	0	0	8,510	0	0	-8,510		1944
	270,510	364,450	0	0	364,450	0	21,324,126	20,951,166		1945
	334,434	920,555	523,779	82,750	314,026	21,324,126	0	20,637,140	21,324,126	1946
	364,299	1,091,920	515,929	↓	493,241	↓	0	20,143,899	↓	1947
	416,432	1,100,757	503,597		514,410		0	19,629,489		1948
	363,596	1,297,536	490,737		724,049		0	18,905,440		1949
	623,434	1,411,514	472,636		856,128		10,116,124	28,165,436		1950
	920,774	1,192,720	704,136	59,800	428,784	31,440,250	8,416,710	36,153,362	31,440,250	1951
	1,351,820	1,084,358	903,834	↓	120,724	39,856,960	1,748,650	37,781,288	39,856,960	1952
	1,720,016	1,023,513	944,532		19,181	41,605,610	66,785,547	104,547,654	41,605,610	1953
	2,873,224	1,610,120	2,613,691	147,250	-1,150,821	108,391,157	14,632,477	120,330,952	108,391,157	1954
	3,565,745	228,498	3,008,274		-2,927,026	123,023,634	5,457,184	128,715,162	123,023,634	1955
111	7,947,071	-408,341	3,217,879		-3,773,470	128,480,818	26,764,574	159,273,206	128,480,818	1956
560	9,308,770	-859,105	3,981,830	147,250	-4,988,185	155,265,392	1,380,672	165,642,063	155,265,392	1957
834	9,116,011	-927,186	3,981,830	147,250	-5,056,266	155,265,392	765,968	165,095,440	155,265,392	1957
726	-192,759	-68,081	0	0	-68,081	0	-614,704	-546,623	0	DIF.
520	9,504,419	2,083,721	4,141,052	147,250	-2,204,581	156,646,064	1,380,000	169,226,644	156,646,064	1958
315	11,049,155	2,661,994	4,127,386	147,250	-1,612,642	156,031,360	537,885	167,245,967	156,031,360	1958
205	1,544,736	578,273	-13,666	0	591,939	-614,704	-842,115	-1,980,677	-614,704	DIF.
520	9,670,667	2,886,779	4,230,666	195,000	-1,538,887	158,026,064	53,487,000	224,252,531	158,026,064	1959
240	11,990,934	2,748,041	4,181,149	147,250	-1,560,358	156,569,245	11/ 48,216,667	217,042,992	156,569,245	1959
280	2,320,267	-138,738	-49,517	-47,750	-41,471	-1,456,819	-5,270,333	-7,209,539	-1,456,819	DIF.
700	8,411,611	6,148,296	5,606,313	↓	346,983	211,513,064	0	223,905,548	211,513,064	1960
700	8,911,103	6,273,354	5,597,639		480,715	↓	16,153,386	239,578,219	↓	1961
780	9,090,110	8,377,247	5,989,455	107,500	2,280,292	227,329,064	47,603	237,345,530	227,329,064	1962
	↓	↓	5,933,638	↓	2,336,109	↓	65,162	235,074,583	↓	1963
			5,876,865		2,392,882		-129,757	232,551,944		1964
			5,813,759		2,455,948		-73,458	230,022,538		1965
			5,750,563		2,519,184		4,066	227,507,420		1966
			5.687,686		2,582,061		19,080	224,944,439		1967
			5,623,611		2,646,136		0	222,298,303		1968
			5,557,458		2,712,289		0	219,586,014		1969
		8,415,747	5,489,650		2,816,597		130,457	216,897,674		1970
		↓	5,422,447		2,885,800		413,680	214,425,754		1971
200	10,730,385	6,087,677	5,360,644		2,947,603		92,005	211,570,156		1972
095	9,909,745	7,271,464	5,289,254		890,923		71,835	210,951,068		1973
780	9,090,110	8,454,247	5,273,777		1,890,187		-187,032	208,873,849		1974
	↓	↓	5,221,846		3,124,901		-91,245	205,657,703		1975
			5,141,443		3,205,304		13,602	202,466,001		1976
			5,061,650		3,285,097		37,779	199,218,683		1977
			4,980,467		3,366,280		55,377	195,907,780		1978
			4,897,695		3,449,052		565,433	193,024,161		1979
			4,825,604		3,521,143		766,987	190,292,005		1980
			4,757,300		3,589,447		2,041,428	188,743,966		1981
			4,718,600		3,628,147		100,718	185,216,557		1982
			4,630,414		3,716,333		4,972,630	186,472,854		1983
	7,379,633	10,164,724	4,661,821		5,395,403		2,140,642	183,218,093		1984
		9,997,764	4,580,452		5,309,812		1,050,747	176,958,828		1985
			4,474,721		5,415,543		633,049	174,206,334		1986
			4,355,158		5,535,106		1,077,909	169,749,137		1987
			4,243,728		5,646,536		23,268	164,125,869		1988
			4,103,147		5,787,117		431,898	158,770,650		1989
			3,969,266		5,920,998		117,676	152,967,328		1990
			3,824,183		6,066,081		582,137	147,483,384		1991
			3,687,085		6,203,179		66,044	141,346,249		1992
200	9,598,908	7,436,519	3,533,656		3,795,363		40,117	137,591,003		1993
095	8,488,768	8,717,644	3,439,775		5,178,369		-137,235	132,283,399		1994
780	7,379,633	9,997,764	3,307,085		6,583,179		-80,810	125,619,410	206,004,938	1995
	↓	↓	3,140,465		6,749,779		40,117	118,909,748		1996
			2,972,744		6,917,520		24,817	112,017,045		1997
			2,800,426		7,089,838		47,120	104,974,327		1998
			2,624,358		7,265,906		9,557	97,717,978		1999
			2,442,949		7,447,315		96,442	90,367,105	195,888,814	2000
			2,259,173		7,631,086		1,112,052	83,848,071	187,472,104	2001
			2,096,202		7,794,062		94,155	76,148,164	185,723,454	2002
			1,903,704		7,986,560		264,855	68,426,459	118,937,907	2003
			1,710,661		8,179,603		126,282	60,373,138	104,305,430	2004
			1,509,328		8,380,936		-23,063	51,969,139	98,548,246	2005
			1,299,228		8,591,036		68,283	43,446,386	72,063,672	2006
			1,086,160		8,804,104		101,405	34,743,687	70,683,000	2007
			858,592		9,021,672		137,310	25,859,325	69,303,000	2008
			646,483		9,243,781		126,072	16,741,616	15,516,000	2009
			418,540		9,471,724		2,016	7,271,908	↓	2010
			181,798	↓	9,708,466	↓	0	-2,436,558	0	2011

e and power contracts; City

e and power contracts.
the integrated system.

FPC account numbers and

rtized within 50 years after

Table Rock Dam.

6/1/59. Firm cost
to adjustment at a
7/58. Investment for
facilities.

Year of Study	Fiscal Year	Project Output (Net) Delivered to SWG&E Co.	1/Sale of Energy, Kwh 2/Energy Withdrawn for Preferred Customers Total	Hydro	From SWG&E Co. System	Project Output Retained by SWG&E Co.	
	5/1950	3,058,270	0	0	0	3,058,270	3
1	7/1951	29,219,380	0	0	0	29,219,380	29
2	1952	41,484,250	6,207,906	6,207,906	0	35,276,344	41
3	1953	47,381,830	19,265,500	16,883,260	2,382,240	30,498,570	49
4	1954	17,218,690	21,247,290	10,060,420	11,186,870	7,158,270	28
5	1955	28,809,400	23,196,498	19,204,848	3,991,650	9,604,552	32
6	1956	21,217,800	23,025,580	14,937,230	8,088,350	6,280,570	29
	EST. 1957	28,400,000	22,000,000	22,000,000	0	6,400,000	28,
	ACTUAL 1957	39,502,150	23,186,700	15,462,490	7,724,210	24,039,660	47,
	DIFFERENCE	11,102,150	1,186,700	-6,537,510	7,724,210	17,639,660	18,
	EST. 1958	28,400,000	22,000,000	22,000,000	0	6,400,000	28,
8	ACTUAL 1958	45,825,330	22,340,700	20,866,150	1,474,550	24,959,180	47,
	DIFFERENCE	17,425,330	340,700	-1,133,850	1,474,550	18,559,180	18,
	EST. 1959	28,400,000	22,000,000	22,000,000	0	6,400,000	28,
9	ACTUAL 1959	25,106,800	23,103,000	18,852,830	4,250,170	6,253,970	29,
	DIFFERENCE	-3,293,200	1,103,000	-3,147,170	4,250,170	-146,030	
10	1960						
11	1961						
12	1962						
13	1963						
14	1964						
15	1965						
16	1966						
17	1967						
18	1968						
19	1969						
20	1970						
21	1971						
22	1972						
23	1973	18,400,000	22,000,000	18,400,000	3,600,000	0	
24	1974	23,400,000	22,000,000	22,000,000	0	1,400,000	
25	1975	28,400,000	22,000,000	22,000,000	0	6,400,000	
26	1976						
27	1977						
28	1978						
29	1979						
30	1980						
31	1981						
32	1982						
33	1983						
34	1984						
35	1985						
36	1986						
37	1987						
38	1988						
39	1989						
40	1990						
41	1991						
42	1992						
43	1993	18,400,000	22,000,000	18,400,000	3,600,000	0	
44	1994	23,400,000	22,000,000	22,000,000	0	1,400,000	
45	1995	28,400,000	22,000,000	22,000,000	0	6,400,000	
46	1996						
47	1997						
48	1998						
49	1999						
50	2000						

1/ Actual kwh sales and revenue throu
2/ Service to preferred customers sta
3/ Corps of Engineers expenses; opera
beginning with commercial operati
4/ Actual expenses through 1956 estim
5/ All testing generation and revenue
6/ Investment allocated to power of $
17,000 kw, primary energy 18,400,
7/ Contract #396 with Southwestern Ga
has right of withdrawal to prefer
8/ Includes $1,679 purchased power ex
9/ Approximately one year's operation

SUMMARY TABLE NO. II

FINANCIAL OPERATION STUDY FOR EXAMINATION OF AVERAGE RATE AND INVESTMENT REPAYMENT FROM POWER REVENUES FOR NARROWS DAM PROJECT OF SOUTHWESTERN POWER ADMINISTRATION

y	Total	1/Operating Revenue: SWG&E Co. for Project Output (Net)	1/Operating Revenue: Preferred Customers	1/Operating Revenue: Total	Operating Expen: 3/Project (C. of E.): Withdrawal Charge to SWG&E Co.	3/Project (C. of E.): Service Charge to SWG&E Co.	3/Project (C. of E.): Operation and Maintenance	3/Project (C. of E.): Replace ments
	$	$	$	$	$	$	$	$
	3,058,270	3,823	0	3,823	0	0	0	0
	29,219,380	166,266	0	166,266	0	0	122,752	6,000
	41,484,250	200,323	33,059	233,382	34,366	4,872	128,466	
	49,764,070	207,000	103,364	310,364	106,096	12,000	115,524	
	28,405,560	207,000	114,535	321,535	117,564	12,000	109,616	
	32,801,050	207,000	124,621	331,621	128,586	12,000	114,409	
	29,306,150	207,000	124,439	331,439	8/129,819	12,000	95,525	
	28,400,000	207,000	121,000	328,000	124,000	12,000	100,000	6,000
	47,226,360	207,000	126,219	333,219	129,095	12,000	91,358	6,000
	18,826,360	0	5,219	5,219	5,095	0	-8,642	0
	28,400,000	207,000	153,000	360,000	124,000	12,000	100,000	6,000
	47,299,880	207,000	151,328	358,328	125,866	12,000	104,406	6,000
	18,899,880	0	-1,672	-1,672	1,866	0	4,406	0
	28,400,000	207,000	153,000	360,000	124,000	12,000	100,000	6,000
	29,356,970	207,000	157,451	364,451	128,686	12,000	127,378	6,000
	956,970	0	4,451	4,451	4,686	0	27,378	0

ue through 1956, estimated thereafter.
mers started February 1952.
s; operation and maintenance actual through 1956, no actual replacements experienced. Replacements estima
operation. Estimated expenses taken from Cost Allocation Report of March 1956.
56 estimated thereafter to Narrows as isolated project on a kwh generation basis.
revenue.
wer of $5,495,000 taken from Corps of Engineers Cost Allocation Report of March 1956; installed capacity
18,400,000 kwh, average annual energy 28,400,000 kwh.
stern Gas and Electric Company commenced February 1951 for the output of Narrows Dam Project. The Governm
o preferred customers of 5,000 kw and accompanying energy.
power expense.
peration on the integrated system after it is paid out to amortize Narrows Dam Project deficit.

SUMMARY TABLE NO. II

FINANCIAL OPERATION STUDY FOR EXAMINATION OF AVERAGE RATE AND INVESTMENT REPAYMENT FROM POWER REVENUES FOR NARROWS DAM PROJECT OF SOUTHWESTERN POWER ADMINISTRATION

Comparison Actual Fiscal and Avera

	1/Operating Revenue			Operating Expenses					
						3/Project (C. of E.)		4/All Other (	
Total	SWG&E Co. for Project Output (Net)	Preferred Customers	Total	Withdrawal Charge to SWG&E Co.	Service Charge to SWG&E Co.	Operation and Maintenance	Replacements	General Administration	Po Mark
	$	$	$	$	$	$	$	$	
3,058,270	3,823	0	3,823	0	0	0	0	0	
29,219,380	166,266	0	166,266	0	0	122,752	6,000	3,728	6,
41,484,250	200,323	33,059	233,382	34,366	4,872	128,466		27,156	9,
49,764,070	207,000	103,364	310,364	106,096	12,000	115,524		38,667	9,
28,405,560	207,000	114,535	321,535	117,564	12,000	109,616		12,083	1,
32,801,050	207,000	124,621	331,621	128,586	12,000	114,409		17,334	2,
29,306,150	207,000	124,439	331,439	8/129,819	12,000	95,525		3,972	
28,400,000	207,000	121,000	328,000	124,000	12,000	100,000	6,000	6,665	1,
47,226,360	207,000	126,219	333,219	129,095	12,000	91,358	6,000	7,069	1,
18,826,360	0	5,219	5,219	5,095	0	-8,642	0	404	
28,400,000	207,000	153,000	360,000	124,000	12,000	100,000	6,000	6,704	1,
47,299,880	207,000	151,328	358,328	125,866	12,000	104,406	6,000	7,529	1,
18,899,880	0	-1,672	-1,672	1,866	0	4,406	0	825	
28,400,000	207,000	153,000	360,000	124,000	12,000	100,000	6,000	6,066	1,
29,356,970	207,000	157,451	364,451	128,686	12,000	127,378	6,000	4,876	1,
956,970	0	4,451	4,451	4,686	0	27,378	0	-1,190	-
								4,947	1,
								4,646	1,
								4,458	1,
								3,813	
								4,180	
								4,458	1,
								3,813	
								4,180	
								4,458	1

ough 1956, estimated thereafter.
tarted February 1952.
ration and maintenance actual through 1956, no actual replacements experienced. Replacements estimated
tion. Estimated expenses taken from Cost Allocation Report of March 1956.
imated thereafter to Narrows as isolated project on a kwh generation basis.
uc.
$5,495,000 taken from Corps of Engineers Cost Allocation Report of March 1956; installed capacity
0,000 kwh, average annual energy 28,400,000 kwh.
Gas and Electric Company commenced February 1951 for the output of Narrows Dam Project. The Government
erred customers of 5,000 kw and accompanying energy.
expense.
on on the integrated system after it is paid out to amortize Narrows Dam Project deficit.

SOUTHWESTERN POWER ADMINISTRATION

parison of Energy Sales, Operating Revenues and Expenses, and Capital Repayment
Fiscal Years 1957, 1958 and 1959 Compared with Estimated as Shown in the Repayment
d Average Rate Determination Study of October 1956 for the Narrows Dam Project

Other (SPA)			Investment to be Repaid from Power Revenue			
Power Marketing	Total	Net Operating Revenue	Interest 2½%	Principal	Added During Year	Balance to be Repaid
$	$	$	$	$	$	$
0	0	3,823	0	3,823	6/5,495,000	5,491,177
6,555	139,035	27,231	137,279	-110,048	0	5,601,225
9,661	210,521	22,861	140,031	-117,170		5,718,395
9,727	288,014	22,350	142,960	-120,610		5,839,005
1,234	258,497	63,038	145,975	-82,937		5,921,942
2,417	280,746	50,875	148,049	-97,174		6,019,116
896	248,212	83,227	150,478	-67,251		6,086,367
1,563	250,228	77,772	152,159	-74,387	0	6,160,754
1,579	247,101	86,118	152,159	-66,041	0	6,152,408
16	-3,127	8,346	0	8,346	0	-8,346
1,600	250,304	109,696	154,019	-44,323	0	6,205,077
1,773	257,574	100,754	153,810	-53,056	0	6,205,[illegible]
173	7,270	-8,942	-209	-8,733	0	337
1,448	249,514	110,486	155,127	-44,641	0	6,249,718
1,087	280,027	84,424	155,137	-70,713	0	6,276,177
-361	30,513	-26,062	10	-26,072	0	26,459
1,181	248,128	111,872	156,240	-44,368		6,293,986
1,109	247,755	112,245	157,350	-45,105		6,339,091
1,064	247,522	112,478	158,477	-45,999		6,385,090
			159,627	-47,149		6,432,239
			160,806	-48,328		6,480,567
			162,014	-49,536		6,530,103
			163,253	-50,775		6,580,878
			164,522	-52,044		6,632,922
			165,823	-53,345		6,686,267
			167,157	-54,679		6,740,946
			168,524	-56,046		6,796,992
			169,925	-57,447		6,854,439
			171,361	-58,883		6,913,322
910	246,723	113,277	172,833	-59,556		6,972,878
998	247,178	112,822	174,322	-61,500		7,034,378
1,064	247,522	112,478	175,859	-63,381		7,097,759
			177,444	-64,966		7,162,725
			179,068	-66,590		7,229,315
			180,733	-68,255		7,297,570
			182,439	-69,961		7,367,531
			184,188	-71,710		7,439,241
			185,981	-73,503		7,512,744
			187,819	-75,341		7,588,085
			189,702	-77,224		7,665,309
			191,633	-79,155		7,744,464
			193,612	-81,134		7,825,598
			195,640	-83,162		7,908,760
			197,719	-85,241		7,994,001
			199,850	-87,372		8,081,373
			202,034	-89,556		8,170,929
			204,273	-91,795		8,262,724
			206,568	-94,090		8,356,814
			208,920	-96,442		8,453,256
910	246,723	113,277	211,331	-98,853		8,552,109
998	247,178	112,822	213,803	-100,981		8,653,090
1,064	247,522	112,478	216,327	-103,849		8,756,939
			218,923	-106,445		8,863,384
			221,585	-109,107		8,972,491
			224,312	-111,834		9,084,325
			227,108	-114,630		9,198,955
			229,974	-117,496		9/9,316,451

1	2	3	4	5	6	7
Year of Study	Fiscal Year	1/Sales of Energy, Kwh				
		Testing	Dump	Commercial Operation		Total
				Primary	Secondary	
6/25/53-6/30/53	1953	352,000	-	-	-	352,0
	1954	2,650,651	17,096,361	-	-	19,747,0
	5/1955	0	12,463,650	2,500,000	14,754,198	29,717,8
1	1956		0	29,988,706	19,225,400	49,214,1
	EST. 1957	0	0	33,200,000	51,800,000	85,000,0
2	ACTUAL 1957	0	0	25,037,000	46,583,000	71,620,0
	DIFFERENCE	0	0	-8,163,000	-5,217,000	-13,380,0
	EST. 1958	0	0	33,200,000	51,800,000	85,000,0
3	ACTUAL 1958	0	0	30,000,000	53,680,000	83,680,0
	DIFFERENCE	0	0	-3,200,000	1,880,000	-1,320,0
	EST. 1959	0	0	33,200,000	51,800,000	85,000,0
4	ACTUAL 1959	0	0	30,000,000	8,328,000	38,328,0
	DIFFERENCE	0	0	-3,200,000	-43,472,000	-46,672,0
5	1960					
6	1961					
7	1962					
8	1963					
9	1964					
10	1965					
11	1966					
12	1967					
13	1968					
14	1969					
15	1970					
16	1971					
17	1972					
18	1973			33,200,000	0	33,200,0
19	1974			33,200,000	25,900,000	59,100,0
20	1975			33,200,000	51,800,000	85,000,0
21	1976					
22	1977					
23	1978					
24	1979					
25	1980					
26	1981					
27	1982					
28	1983					
29	1984					
30	1985					
31	1986					
32	1987					
33	1988					
34	1989					
35	1990					
36	1991					
37	1992					
38	1993			33,200,000	0	33,200,0
39	1994			33,200,000	25,900,000	59,100,0
40	1995			33,200,000	51,800,000	85,000,0
41	1996					
42	1997					
43	1998					
44	1999					
45	2000					
46	2001					
47	2002					
48	2003					
49	2004					
50	2005					

1/ Actual kilowatt-hour sales and revenu

2/ Corps of Engineers expenses; operatio estimated beginning with commercial

3/ Actual expenses through 1956, estimat

4/ Construction interest ended in fiscal commenced. Allocated power investme 28,500 kilowatts.

5/ Contract Number 660 commenced June 1, $441,000 per year.

6/ Approximately 4½ years longer operati

SUMMARY TABLE NO. III

FINANCIAL OPERATION STUDY FOR EXAMINATION OF AVERAGE RATE AND INVESTMENT REPAYMENT FROM POWER REVENUES FOR WHITNEY DAM PROJECT OF SOUTHWESTERN POWER ADMINISTRATION

7	8	9	10	11	12	13	14	15
					Operating Expenses, Dollars			
	1/Operating Revenue, Dollars				2/Project (C. of E.)		3/All Other (SPA)	
Total	Testing	Dump	Commercial Operation	Total	Operation and Maintenance	Replacements	General Administration	Power Marketing
	$	$	$	$	$	$	$	$
352,000	440	-	-	440	15,654	-	-	-
19,747,012	3,313	21,371	-	24,684	95,213	-	-	-
29,717,848	0	15,579	50,250	65,829	98,219	-	-	-
49,214,106	1	0	441,000	441,000	116,268	10,100	9,022	2,035
5,000,000	0	0	441,000	441,000	123,000	10,100	19,912	4,671
1,620,000	0	0	379,000	379,000	62,305	10,100	12,646	2,825
3,380,000	0	0	-62,000	-62,000	-60,695	0	-7,266	-1,846
5,000,000	0	0	441,000	441,000	123,000	10,100	20,063	4,788
3,680,000	0	0	441,000	441,000	129,100	10,100	13,680	3,222
1,320,000	0	0	0	0	6,100	0	-6,383	-1,566
5,000,000	0	0	441,000	441,000	123,000	10,100	18,154	4,333
8,328,000	0	0	441,000	441,000	121,149	10,100	7,295	1,626
6,672,000	0	0	0	0	-1,851	0	-10,859	-2,707
							14,807	3,534
							13,904	3,318
							13,344	3,184
33,200,000							6,880	1,642
59,100,000							10,558	2,519
85,000,000							13,344	3,184

d revenue through 1956, estimated thereafter.
operation and maintenance actual through 1956, no actual replacements experienced. Replacements
mmercial operation. Estimated expenses taken from Cost Allocation Report of December 1955.
estimated thereafter, allocated to Whitney as isolated project on a kilowatt-hour generation basis.
n fiscal year 1953. Study allows interest alone until fiscal year 1956 when 50 year amortization
investment from Corps of Engineers Cost Allocation Report of December 1955. Installed capacity

June 1, 1955 with Brazos Electric Power Cooperative, Inc., for output of Whitney Dam Project for

operation of project, based on present conditions, over 50 years needed to amortize investment.

33,200,000
59,100,000
85,000,000
6,880 1,642
10,558 2,519
13,344 3,184

SUMMARY TABLE NO. III

FINANCIAL OPERATION STUDY FOR EXAMINATION OF AVERAGE RATE AND INVESTMENT R
FROM POWER REVENUES FOR WHITNEY DAM PROJECT OF SOUTHWESTERN POWER ADMINIS

	5	6	7	8	9	10	11	12	13	14
	1/Sales of Energy, Kwh			1/Operating Revenue, Dollars				Operating Expenses, 2/Project (C. of E.)		3/All Ot
	Commercial Operation									
	Primary	Secondary	Total	Testing	Dump	Commercial Operation	Total	Operation and Maintenance	Replacements	General Administration
				$	$	$	$	$	$	$
	-	-	352,000	440	-	-	440	15,654	-	-
1	-	-	19,747,012	3,313	21,371	-	24,684	95,213	-	-
0	2,500,000	14,754,198	29,717,848	0	15,579	50,250	65,829	98,219	-	-
	29,988,706	19,225,400	49,214,106	1	0	441,000	441,000	116,268	10,100	9,022
	33,200,000	51,800,000	85,000,000	0	0	441,000	441,000	123,000	10,100	19,912
	25,037,000	46,583,000	71,620,000	0	0	379,000	379,000	62,305	10,100	12,646
	-8,163,000	-5,217,000	-13,380,000	0	0	-62,000	-62,000	-60,695	0	-7,266
	33,200,000	51,800,000	85,000,000	0	0	441,000	441,000	123,000	10,100	20,063
	30,000,000	53,680,000	83,680,000	0	0	441,000	441,000	129,100	10,100	13,680
	-3,200,000	1,880,000	-1,320,000	0	0	0	0	6,100	0	-6,383
	33,200,000	51,800,000	85,000,000	0	0	441,000	441,000	123,000	10,100	18,154
	30,000,000	8,328,000	38,328,000	0	0	441,000	441,000	121,149	10,100	7,295
	-3,200,000	-43,472,000	-46,672,000	0	0	0	0	-1,851	0	-10,859
										14,807
										13,904
										13,344
	33,200,000	0	33,200,000							6,880
	33,200,000	25,900,000	59,100,000							10,558
	33,200,000	51,800,000	85,000,000							13,344
	33,200,000	0	33,200,000							6,880
	33,200,000	25,900,000	59,100,000							10,558
	33,200,000	51,800,000	85,000,000							13,344

1/ Actual kilowatt-hour sales and revenue through 1956, estimated thereafter.
2/ Corps of Engineers expenses; operation and maintenance actual through 1956, no actual replacements experienced. Replacements estimated beginning with commercial operation. Estimated expenses taken from Cost Allocation Report of December 1955.
3/ Actual expenses through 1956, estimated thereafter, allocated to Whitney as isolated project on a kilowatt-hour generation basi
4/ Construction interest ended in fiscal year 1953. Study allows interest alone until fiscal year 1956 when 50 year amortization commenced. Allocated power investment from Corps of Engineers Cost Allocation Report of December 1955. Installed capacity 28,500 kilowatts.
5/ Contract Number 660 commenced June 1, 1955 with Brazos Electric Power Cooperative, Inc., for output of Whitney Dam Project for $441,000 per year.
6/ Approximately 4½ years longer operation of project, based on present conditions, over 50 years needed to amortize investment.

STMENT REPAYMENT
ADMINISTRATION

SOUTHWESTERN POWER ADMINISTRATION

Comparison of Energy Sales, Operating Revenues and Expenses, and Capital Repayment
Actual Fiscal Years 1957, 1958 and 1959 Compared with Estimated as Shown in the Repayment
and Average Rate Determination Study of October 1956 for the Whitney Dam Project

14	15	16	17	18	19	20	21	22	23	
penses, Dollars										
3/All Other (SPA)				Investment to be Repaid from Power Revenues						
eneral Administration	Power Marketing	Total	Net Operating Revenue (Dollars)	Interest 2½%	Principal	Added During Year	Balance to be Repaid	Fiscal Year	Year of Study	
$	$	$	$	$	$	$	$			
-	-	15,654	440	0	440	-	15,214	1953	6/25/53-6/30/53	
-	-	95,213	-70,529	202,283	-272,812	4/8,091,300	8,379,326	1954		
-	-	98,219	-32,390	209,483	-241,873	-	8,621,199	1955		
9,022	2,035	137,425	303,575	215,530	88,045	-	8,533,154	1956	1	
9,912	4,671	157,683	283,317	213,329	69,963	-	8,463,191	1957	EST.	
2,646	2,825	87,876	291,124	213,329	77,795	-	8,455,359	1957	ACTUAL	2
7,266	-1,846	-69,807	7,807	0	7,832	-	-7,832		DIFFERENCE	
0,063	4,788	157,951	283,049	211,580	71,469	-	8,391,722	1958	EST.	
3,680	3,222	156,102	284,898	211,384	73,514	-	8,381,845	1958	ACTUAL	3
6,383	-1,566	-1,849	1,849	-196	2,045	-	-9,877		DIFFERENCE	
8,154	4,333	155,587	285,413	209,793	75,620	-	8,316,102	1959	EST.	
7,295	1,626	140,170	300,830	209,546	91,284	-	8,290,561	1959	ACTUAL	4
0,859	-2,707	-15,417	15,417	-247	15,664	-	-25,541		DIFFERENCE	
4,807	3,534	151,441	289,559	207,903	81,656	-	8,234,446	1960	5	
3,904	3,318	150,322	290,678	205,861	84,817	-	8,149,629	1961	6	
3,344	3,184	149,628	291,372	203,741	87,887	-	8,061,742	1962	7	
				201,544	89,828	-	7,971,914	1963	8	
				199,298	92,074	-	7,879,840	1964	9	
				196,996	94,376	-	7,785,464	1965	10	
				194,637	96,735	-	7,688,729	1966	11	
				192,218	99,154	-	7,589,575	1967	12	
				189,739	101,633	-	7,487,942	1968	13	
				187,199	104,173	-	7,383,769	1969	14	
				184,594	106,778	-	7,276,991	1970	15	
				181,925	109,447	-	7,167,544	1971	16	
				179,189	112,183	-	7,055,361	1972	17	
6,880	1,642	141,622	299,378	176,384	122,994	-	6,932,367	1973	18	
10,558	2,519	146,177	294,823	173,309	121,514	-	6,810,853	1974	19	
13,344	3,184	149,628	291,372	170,271	121,101	-	6,689,752	1975	20	
				167,244	124,128	-	6,565,624	1976	21	
				164,141	127,231	-	6,438,393	1977	22	
				160,960	130,412	-	6,307,981	1978	23	
				157,700	133,672	-	6,174,309	1979	24	
				154,358	137,014	-	6,037,295	1980	25	
				150,932	140,440	-	5,896,855	1981	26	
				147,421	143,951	-	5,752,904	1982	27	
				143,823	147,549	-	5,605,355	1983	28	
				140,134	151,238	-	5,454,117	1984	29	
				136,353	155,019	-	5,299,098	1985	30	
				132,474	158,898	-	5,140,200	1986	31	
				128,505	162,867	-	4,977,333	1987	32	
				124,433	166,939	-	4,810,394	1988	33	
				120,260	171,112	-	4,639,282	1989	34	
				115,982	175,390	-	4,463,892	1990	35	
				111,597	179,775	-	4,284,117	1991	36	
				107,103	184,269	-	4,099,848	1992	37	
6,880	1,642	141,622	299,378	102,496	196,882	-	3,902,966	1993	38	
10,558	2,519	146,177	294,823	97,574	197,249	-	3,705,717	1994	39	
13,344	3,184	149,628	291,372	92,643	198,729	-	3,506,988	1995	40	
				87,675	203,697	-	3,303,291	1996	41	
				82,582	208,790	-	3,094,501	1997	42	
				77,363	214,009	-	2,880,492	1998	43	
				72,012	219,360	-	2,661,132	1999	44	
				66,528	224,844	-	2,436,288	2000	45	
				60,907	230,465	-	2,205,823	2001	46	
				55,146	236,226	-	1,969,597	2002	47	
				49,240	242,132	-	1,727,465	2003	48	
				43,187	248,185	-	1,479,280	2004	49	
				36,982	254,390	-	6/1,224,890	2005	50	

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Summary of total sales to preference customers served direct by Southwestern Power Administration

	Fiscal year 1950 through fiscal year 1958	Fiscal year 1959	Total
Kilowatt-hour sales:			
G. & T. cooperatives (except Whitney)	2,800,545,409	990,313,723	3,790,859,132
Other preference customers	775,586,412	151,727,493	927,313,905
Total	3,576,131,821	1,142,041,216	4,718,173,037
Revenue:			
G. & T. cooperatives (except Whitney)	$16,700,235.09	$6,471,971.94	$23,172,207.03
Other preference customers	3,903,012.35	1,000,269.03	4,903,281.38
Total	20,603,247.44	7,472,240.97	28,075,488.41
Purchased power (G. & T.):			
Kilowatt-hours	1,526,934,249	461,554,910	1,988,489,159
Amount	$11,670,100.07	$3,563,743.49	$15,233,843.56
Lease and service charge payments: Amount	$10,188,157.71	$3,661,412.91	$13,849,570.62
Whitney Dam project:			
Kilowatt-hour sales	254,330,966	38,328,000	292,658,966
Revenue	$1,351,952.96	$441,000.00	$1,792,952.96

Mr. WRIGHT. I think the front sheet of that is all I need to discuss with the committee, but I particularly want you to notice carefully with me the total power sales by this Administration since our inception which have been 12,817,465,521 kilowatt-hours, for which we have received $70,080,284.40.

Our total secondary sales are quite interesting. You will note that approximately 2½ billion of the 12 billion has been for secondary sales for which we have received an average of 1.35 mills per kilowatt-hour. This is from the start until now.

The total firm power sales brought us in an average revenue of 6.49 mills.

The total firm power sales to preference customers brought in an average of 6.16 mills.

You will notice that the preference firm sales have a lower rate than do the average firm sales and that appears because in sales to power companies we have received an average rate of 8.64 mills. That is the last figure on the page. The aluminum sales, which I think is the least desirable contract we have, or ever had, brings in a revenue of 5.26 mills, while the total firm sales to other than the preference customers averaged 7 mills. However, preference customers have had an average of 6.16 and this is because of the advantages of the exchanges we receive in these contracts which we have been successful in making with practically every power company down there and with every generator and transmitter in the area.

We have detailed that for you in sufficient detail that any check can be made of it.

PAYOUT STUDY

The next item, Mr. Chairman, is the payout study which I would like to offer for the record.

(The chart referred to follows:)

Mr. WRIGHT. Mr. Chairman, we now come to what I call my Bible. I started 2 years ago with this committee bringing to you each year this same payout study on which our present rate schedules are based.

You will recall that rates for the Southwestern Power Administration are redetermined every 5 years. Every contract we have, except the aluminum contract, has a provision in it for the adjustment of rates, if necessary. You will note that.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. You may continue.

Mr. WRIGHT. This is the 14th year of this study and on the first page of this tabulation is a very interesting thing. If you will go over to the sixth column where it says "Total sales of energy" you will note that we estimated we were going to sell 2,059,800,000 kilowatt-hours. We did not sell but 1,856,115,028. We were 203.7 million less than our estimate on sales. But, if you will go with me to the last column on that page, you will note we estimated we were going to have a total gross revenue of $12,557,446. We had a revenue of $14,738,975. We sold a lesser amount of power for $2 million more than we estimated, for two reasons: We have readjusted our contracts to the point where we are in the peaking power business, which is what we produce to a greater extent, and we were successful in securing more contracts with private companies which allowed us a very favorable exchange. I think that indication in this report is one of the most hopeful signs that we have been able to give you for some time.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. Will you proceed, Mr. Wright.

Mr. WRIGHT. If I may continue with the second page of that tabulation, you will notice we have carried our gross revenue over, and I would point out only that the total operating expenses were estimated for fiscal year 1959 at $9,670,667 and our actual expenses were $11,990,934 or $2,320,267 more than estimated. So that we had estimated net revenue for fiscal year 1959 of $2,886,779, and the actual net revenue was $2,748,041 or $138,738 below our estimate last year. That accrued primarily from the fact we had a little less power sales than anticipated; we had a little less power to sell; and we had a bad water year. Our secondary power sales were not up to our estimates. But you will notice we were extremely close.

Then over to the column "Balance to be repaid"which is the third column from the end.

You will recall that last year the estimated balance to be repaid was $169,226,644 and the actual balance to be repaid was $167,245,967, so we were $1,980,677 better than our estimate through the 13th year.

This year we reduced that amount by $138,000. So we are now, for all practical purposes, about $1,850,000 better than our estimates for the 14 years.

But Table Rock Dam was finished at a saving, in the portion allocated to power, of a little over $5 million. So that today the estimated balance to be repaid in the study is $224,252,531, and the actual balance to be repaid is $217,042,992, so the actual figures are $7,209,539 better off than the studies indicated they would be at this time. Some of this is due to the water situation and some is apparently due to

very good construction by the Corps of Engineers. It is delightful to find one Corps of Engineers project completed $5 million below the estimate.

Mr. JENSEN. Thanks to Doug Wright.

Mr. WRIGHT. I do not think I had anything to do with it.

I want to go back to the first sheet of this study.

SALE OF TOTAL CAPACITY

The next 3 years for Southwestern Power are critical, very critical. We are trying something that, if we are successful, will mean a great deal financially to this total program. We are trying to sell up to the hilt all the power capacity and energy we have. Our tight year is 1962. In order to do this we had to have some insurance and some cushion. The Texas Power & Light Co., with which this Administration has worked for nigh on to 10 years now—we went to them and discussed the possibility of assistance from them in the event we had a tight water year. They agreed if we needed it they would release one-half of Denison Dam committed to them in 1962 because they happen to be "long" on generation. We are now beginning to reap the benefits I told the committee about some years ago.

In addition, by the sale of power from Texas Power & Light to a company in the East, we may be able to satisfy another 35 million kilowatts of the Government's commitment so that we will have a supply of 75 million kilowatts provided by our interconnections on the basis we helped them and if the time comes they will help us.

So we think by operating our reservoirs the best we know how we can ride through this. If we do it we will be $2 million better off than if we do not. If we ride it this one time, then from here on we will be in a situation where we know very definitely what our operating level is.

OPERATION AND MAINTENANCE LEVEL

Southwestern Power's operation and maintenance program has never been able to establish a plane which we could consider normal from which we could bring improvement projects. Mr. Fister, the Assistant Administrator, will devote a considerable amount of his time to improvement programs.

Mr. CANNON. Why have you not been able to establish a plane?

Mr. WRIGHT. We have always been asked to make our best contribution, to come up with the smallest budget possible, and we have done that and many times we have absorbed extra costs, just as we will be able to absorb this extra health program which goes in effect the 1st of July. That will probably be $10,000 out of the appropriation you gave us last year. We did not know there would be a health program.

REPORT CONTROL SYSTEM

Here is something. I almost blew the Budget Bureau apart with this one. We started last year to set up a report control system so that I would know we had made them when they were due. So I made a study of the reports Southwestern Power is required to make to other Federal agencies and it almost scared me to death.

Mr. CANNON. Are those statutory requirements?

Mr. WRIGHT. All kinds. If some high-sounding man comes in and says he wants a report, we send it. This will amaze you. We have 111 regular reports a year to make to other Government agencies. We had 21 special reports in fiscal year 1959. That cost us 16,327 hours of man labor, or the work of 8.9 people this whole year. I have 150 people on my staff, 75 of them are in the field in round numbers and 75 in my administration. So 10 percent of my people do not do a thing but make reports. And I yelled a lot louder than this to the Budget Bureau. They were going to do something about it until I asked them if this would mean that the new report they had just asked for would be cancelled, and they said no.

Mr. CANNON. What was the advantage of those reports?

Mr. WRIGHT. In my humble opinion it has not contributed a nickle to the program.

Mr. CANNON. None of them?

Mr. WRIGHT. None. They may have advised other people what we were doing, but any guy who wants to make a study about anything, including the Library of Congress, will write us and say, "Please send me a breakdown of how much we spent in Podunk County last year." They may need to know, but I have to spend the money to find that out because nowhere have I separated Podunk County. It is a tremendous burden on a small organization. If you have a big staff where your operation is large the same number of people could probably make these reports for a much larger organization because they will not have to make any more reports than we do; they will just be a little bigger reports.

Mr. CANNON. What, in your opinion, is the minimum number of reports that will supply the needs of the situation?

Mr. WRIGHT. Probably not over 25 or 30. I make a very complete report and take a lot of the committee's time every year to make a report to you. That is the only time I can talk to you and see you, and we make very complete reports to the Congress. Anybody who has a Congressman—and I think we all do—can get a copy of this hearing if they want it.

Mr. CANNON. And you think that would suffice?

Mr. WRIGHT. If there is anything we leave out, I do not know what it is. The Federal Power Commission has reports they should get. The General Accounting Office audits us every year. Five or six men from the General Accounting Office spend weeks with us every year. The Civil Service Commission audits us every year.

Mr. CANNON. We would be glad if you would include in your statement here a further statement tabulating the number of reports you have made.

Mr. WRIGHT. I shall be very glad to do that. I have that right here.

Mr. CANNON. Can you segregate it so as to show the number that have been requested by the Department of the Interior?

Mr. WRIGHT. I think maybe we have done that in this list.

(The matter referred to follows:)

RECAPITULATION OF TOTAL REPORTS WITH ANALYZATION OF TOTAL MAN-HOURS ANNUALLY BY DIVISION AND TOTAL ANNUAL MAN-HOURS IN SOUTHWESTERN POWER ADMINISTRATION, FISCAL YEAR 1959

The attached "Recapitaulation and Analysis of Scheduled Reports Prepared by this Administration, Fiscal Year 1959," as required under authority of Executive order, legislative action and/or by regulatory measures established by the Department of the Interior, Civil Service Commission, Federal Power Commission, Bureau of the Budget, General Accounting Office, General Services Administration, the Corps of Engineers, Treasury, and other Government agencies, both State and Federal, as well as internal reports of this Administration necessary for the preparation of the aforementioned required reports, is presented in two parts as follows: (1) A worksheet recapitaulation of the total man-hours spent on each report in each Division, as well as the sum total man-hours spent on each report throughout the Administration during the fiscal year 1959, (2) a summation of this recapitulation and analysis.

Attention is called to the fact that each scheduled report is identified by type and due date; is classified as to frequency, i.e., annual, semiannual, quarterly, monthly; and is associated with its originating office (that branch or office which does the research and provides statistical data for the Division), as well as with its completing or responsible Division.

Since many unscheduled, or "special" reports, are required during each fiscal year, these time-consuming projects are also included. These unscheduled reports are presented on the attached worksheet, both as a separate entity and also as an integral part of the grand total of man-hours consumed by the preparation of all reports during fiscal year 1959, the period covered by this recapitulation.

Scheduled reports prepared in Southwestern Power Administration during fiscal year 1959

Classification of report	Number of reports	Total man-hours annually
Annual	68	8,676
Semiannual	8	177
Quarterly	15	341
Monthly	20	2,630
Total	111	11,824
Special	21	4,503
Grand total	132	16,327

NOTE.—Based on the 40-hour workweek, and the 52-week year, the salary of each employee of Southwestern Power Administration is paid for 2,080 hours work each fiscal year. Allowing for 8 national holidays (64 hours) and 2 weeks' vacation time (160 hours), each employee, unless illness prevents, really works only 1,856 hours per annum. The total 16,327 man-hours devoted to the preparation of scheduled reports may be logically interpreted to mean that 8.8 persons worked their entire time on scheduled and "special" reports.

Source of requests for scheduled reports prepared in Southwestern Power Administration during fiscal year 1959

Requested by:	*Number requested*
Department of Interior	54
General Services Administration	14
Bureau of the Budget	13
Civil Service Commission	11
Treasury Department	8
Congress	6
Federal Power Commission	5
General Accounting Office	2
Justice Department	1
Miscellaneous	4
State of Oklahoma	2
State of Missouri	2
SPA [1]	10
Total	132

[1] Internal reports necessary for compilation of data on scheduled and/or special reports.

Schedule of findings on scheduled and special reports requested since compilation of report, prepared Oct. 16, 1959

Source of request:	Number requested
Department of the Interior	13
Bureau of the Budget	4
General Services Administration	3
General Accounting Office	1
Treasury	2
Total	23

Note.—Since the above-listed reports have all been requested only recently, it is impossible to give accurate number of man-hours which will be consumed in their preparation.

Mr. JENSEN. Off the record.

(Discussion off the record.)

Mr. CANNON. I will call attention of the members of the committee to the fact that one of the weaknesses of our form of government is the amount of paperwork required, most of it unnecessary, utterly useless, and seldom consulted after it is received. I think Mr. Wright has put his finger on one thing here that is capable of readjustment so as to save both time and money.

Mr. WRIGHT. Mr. Chairman, I hope something can be done about it because it is becoming a monster.

Mr. JENSEN. Mr. Chairman, may I just say, to supplement your statement, that I think a lot of these report requests which Mr. Wright receives and which the administrators of other agencies of Government receive are due to the fact that we have in almost every agency of Government too many people on the payroll and in order to keep a lot of the employees busy or apparently busy they dream up every kind of a request that can be imagined and ask for reports of every nature. Then it takes a multitude of people in the departments to prepare the report and to get it in final form to hand to the agency head. And this situation has been going on for the past 25 years.

Mr. WRIGHT. Then you have this situation—if I may interrupt you—that once you get the people to do it, if nobody asks for a report they will think up a way to get one of their own.

Mr. JENSEN. Certainly. They lie awake nights trying to find out how they can create more administrative responsibility and put more people on the payroll, then they come before this committee and say: "Look at all the work we had to do over the work we did last year. We must have additional personnel." And all too often we go along with them.

Mr. PILLION. Will the gentleman yield?

Mr. JENSEN. Yes.

Mr. PILLION. Is that not Parkinson's law No. 1, that employees produce work among themselves to pass from one desk to another? I think that is Parkinson's law No. 1, is it not?

Mr. WRIGHT. Mr. Chairman, I did stir up some comment here, for which I am very grateful.

POWER STORAGE AND POTENTIAL ENERGY AVAILABLE

To get on something more pleasant, the next tabulation, No. 10, is headed "Power Storage and Potential Energy Available as of January 15, 1960," when this thing was prepared. And I have brought another sheet which is as of March 1. As of January 15 this shows 87

percent full, and as of that date Table Rock was 48 percent full. As of March 1 the total storage was 83 percent full.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. WRIGHT. This 83 percent full for this time of year is a very good reservoir condition. The normal reservoir curve for this time of year would be considerably below 83 percent under a normal operation because we expect heavier rains in the spring and your heavy flow is in the spring and early summer months.

(The following was submitted for the record:)

Southwestern Power Administration, power storage and potential energy available, Jan. 15, 1960

Project	Power storage		Potential energy [1]	
	Acre-feet	Percent of full pool	Kilowatt-hours	Percent of full pool
Bull Shoals	1,762,900	84	246,548,000	82
Denison	1,676,300	97	141,155,000	96
Fort Gibson	54,000	100	2,800,000	100
Norfolk	621,100	88	81,743,000	86
Tenkiller Ferry	314,300	91	34,347,000	90
Table Rock [2]	1,013,300	52	140,478,000	48
Subtotal	4,428,600	[3] 90	506,598,000	[3] 87
Narrows	154,097	76	15,895,000	74
Whitney	131,700	100	10,110,000	100
Subtotal	285,797	[3] 86	26,005,000	[3] 82
Total	4,714,397	[3] 90	532,598,000	[3] 87

[1] Estimated at 85 percent efficiency.
[2] Storage and energy figures and percentages not included in the interconnected system total until the reservoir fills.
[3] Average.

Inflows for the interconnected system reservoirs averaged about 10 percent greater than median flow during the past year with the greater portion of runoff occurring during the last half of the year.

Table Rock Reservoir has filled to approximately elevation 890 (48 percent full), which is 25 feet below the top of the power pool. Two 50,000 kilowatt units were placed in limited commercial operation June 1, 1959, to release flow required for downstream uses. Unlimited commercial operation of this project will be possible when the pool fills to the top of the power pool, elevation 915.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. Back on the record.

SOURCE AND APPLICATION OF FUNDS

Mr. WRIGHT. The next tabulation is one which we started presenting to the committee last year which gives you a very quick look at the total funds this Administration has had and disbursed since its inception and where they went and what happened to them. It is a sort of a little balance sheet we prepare and submit.

We bragged a little to you last year that we had closed our books right quick after July 1. It turns out we closed them a little too quick and we had some readjustments to make. We learned it is not smart to be quite so fast, that it is better to wait a few days. Some

of these accounts are accruable. That is practically the only criticism the General Accounting Office had of our books, that we had closed them too quick last year.

Mr. CANNON. You are to be complimented that only that minor criticism could be made by the General Accounting Office.

Mr. WRIGHT. We had in congressional appropriations practically $40 million; $560,352.52 had been transferred from other Government agencies. When we find we need something from other agencies we put it on the books. The gross operating income and other revenue was $77.5 million. That makes total funds provided of $118 million.

Then funds applied:

Returned to U.S. Treasury $33.1 million.

Accumulated operating expenses and other income deductions, $59.9 million.

That $59.9 million less nonfund depreciation and amortization expenses of $5.0 million leaves $54.9 million net operating expense.

Then, total funds applied of various kinds of $35,839,119.56. Then you have $5,862,012.68 accrued and other nonfund items.

The total funds applied are then $118.0 million.

I am not accountant enough to read that the way it ought to be read, but the accountants tell me it is an accurate statement of exactly what we have done.

(The statement follows.)

Source and application of Southwestern Power Administration funds at Dec. 31, 1959

FUNDS PROVIDED			
Congressional appropriations (net)			$39,910,976.35
Accountability for transfer of cost or property—Government agencies			560,352.52
Gross operating income and other revenue			77,571,194.17
Total funds provided			$118,042,523.04
FUNDS APPLIED			
Returned to U.S. Treasury			33,104,411.27
Accumulated operating expenses and other income deductions		$59,965,765.85	
Less nonfund depreciation and amortization expense		5,004,760.96	
			54,961,004.89
Plant in service		24,076,636.72	
Construction work in progress		1,531,478.67	
Construction work orders in process of classification		483,165.80	
Special and trust funds on deposit		2,414,981.89	
Cash		5,845,908.96	
Accounts receivable		1,031,631.08	
Nonutility property		2,474.18	
Other current and accrued assets		20.00	
Material and supplies		452,533.66	
Prepayments and advances		1,376.20	
Deferred debits		(1,087.60)	
Total		35,839,119.56	
Less: Accrued and other nonfund items:			
Accounts payable	$652,156.21		
Accrued leave	101,552.98		
Contributions in aid of construction	54,724.12		
Accrued interest on invested capital	5,053,579.37	5,862,012.68	29,977,106.88
Total funds applied			118,042,523.04

RECEIPTS FROM CUSTOMERS

Mr. WRIGHT. The next tabulation shows who has paid us money in the last 3 years. Questions have been asked us each year by the committee to show the source of our money for the last year and the cur-

rent year and an estimate for the following year as to who will be the sources of income to the Government, and we have this breakdown by customer.

You will notice the amount collected for deposit after deducting amount of offset in settlement of accounts was $7,700,036 in 1959; the amount estimated for 1960 is $9,292,000; and the 1961 estimate is $8,942,000. I suppose we have been considering a little less favorable year next year in water than the year we are in now and that is the reason for the difference.

(The tabulation follows:)

Actual breakdown by customer of receipts deposited for fiscal year 1959, and estimated breakdown for fiscal years 1960 and 1961

	1959 actual	1960 estimate	1961 estimate
KAMO Electric Cooperative:			
Sales to cooperative	$954,272	$1,084,000	$1,084,000
Rental of transmission facilities	−481,849	−572,000	−579,000
Receipts deposited to special account	472,423	512,000	505,000
Southwestern Electric Power Co. (Narrows):			
Sales to company	85,098	154,000	207,000
Purchase of power and service charges			−137,000
Receipts deposited to special account	85,098	154,000	70,000
M. & A. Electric Power Cooperative:			
Sales to cooperative	344,377	662,000	544,000
Purchase of power and service charges	−131,510	−170,000	−233,000
Receipts deposited to special account	212,867	492,000	311,000
Sho-Me Power Corp.:			
Sales to corporation	1,722,359	1,887,000	1,548,000
Purchase of power and service charges	−499,200	−547,000	−576,000
Receipts deposited to special account	1,223,159	1,340,000	972,000
Southwestern Electric Power Co. (interconnected system):			
Sales to company		81,000	144,000
Purchase of power and service charges		−75,000	−132,000
Receipts deposited to special account		6,000	12,000
Arkansas Power & Light Co. (Reynolds Metals Co.):			
Sales to company	2,028,579	2,059,000	2,059,000
Receipts deposited to special account	2,028,579	2,059,000	2,059,000
Texas Power & Light Co.:			
Sales to company	119,572		
Purchase of power	−114,901		
Receipts deposited to special account	4,671		
Central Electric Power Cooperative:			
Adjustment of prior year billings	11,540		
Receipts deposited to special account	11,540		
Preference customers and others:			
Sales to preference customers and others, served direct by SPA from its transmission system, and served over the transmission systems of others	3,661,699	4,729,000	5,013,000
Receipts deposited to special account	3,661,699	4,729,000	5,013,000
Total receipts deposited to special fund	7,700,036	9,292,000	8,942,000
Total purchase of power and service charges	745,611	792,000	1,078,000
Total rental of transmission facilities	481,849	572,000	579,000
Total sales to companies and cooperatives	8,927,496	10,656,000	10,599,000
Amount of offset in settlement of accounts	−1,227,460	−1,364,000	−1,657,000
Amount collected for deposit	7,700,036	9,292,000	8,942,000

BREAKDOWN OF CONTINUING FUND REQUIREMENTS

Mr. WRIGHT. Next is a breakdown by customers of continuing fund requirements. This has been asked for by the committee and we have that, as to where the continuing fund will be applied, where it was applied during the past years and where it will be applied during the next budget year.

The total payments from the continuing fund estimated for 1961 is $5 million. In the current year we have an application of $5,045,000 and of that $955,000 is estimated to be savings.

Mr. CANNON. How do you account for the large increase in the case of Central Electric Power Cooperative?

Mr. WRIGHT. You will recall they added a member to the west of Central and two members to the east of Central since the original contract. That plus the large increase in business is the reason for that.

Mr. CANNON. One of those to which you referred was the Northwestern?

Mr. WRIGHT. No. You spoke of Central. You will find in that tabulation Central's payment from continuing fund was $763,522 in 1959; $849,000 in 1960; and is estimated to be $1,432,000 in 1961. In 1961 they are expected to bring in their new generating unit so that there is a shift of sales by Southwestern and it will require a larger program because three new co-ops have been added in Central's system.

Mr. CANNON. You certainly did the Northeastern system a great favor.

Mr. WRIGHT. Yes, sir. When they integrated with Southwestern Power I think they represented about 60 percent of the deficiency in payment of all REA's in the United States. Within 2 years they were in the black, had met all their power payments, and were able to reduce rates about 1 mill and had a surplus of about a quarter million dollars.

Mr. CANNON. I was under the impression that Central Electric would not have as much generating capacity.

Mr. WRIGHT. They have a new unit coming in in 1961.

Mr. CANNON. In 1961?

Mr. WRIGHT. Yes. There was not much change in 1959 and 1960.

Mr. CANNON. Has this new plant been started as yet?

Mr. WRIGHT. Yes. Central is under construction now.

Mr. CANNON. They already have one unit at Chamois?

Mr. WRIGHT. There is one 15,000 kw.-unit and they are adding a 44,000 kw.-unit. Anadarko started another installation at the same time Central did and their unit is in service now and will be dedicated next week. So by shifting our power we were able to allow these co-ops to bring in their own generation. The Government has nothing to do with the new generation.

Mr. CANNON. They own it?

Mr. WRIGHT. They own it and they operate it. They just buy Government power to go with it, which is what this committee said they wanted us to do.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. WRIGHT. If you will look at N.W. Electric Power Cooperative you will see there is very little change in that continuing fund use: $1,447,251 in 1959; $1,482,000 in 1960; and $1,557,000 in 1961.

(The tabulation follows:)

Actual breakdown by customers of continuing fund requirements for fiscal year 1959, and estimated breakdown for fiscal years 1960 and 1961

	1959, actual	1960, estimated	1961, estimated
Central Electric Power Cooperative:			
Purchase of power and service charges	$1,067,471	$1,334,000	$1,351,000
Rentals of transmission facilities	340,370	430,000	416,000
Total due cooperative	1,407,841	1,764,000	1,767,000
Sales to cooperative	−644,319	−915,000	−335,000
Payment from continuing fund	763,522	849,000	1,432,000
N.W. Electric Power Cooperative:			
Purchase of power and service charges	2,127,437	2,239,000	2,425,000
Rentals of transmission facilities	363,820	478,000	470,000
Total due cooperative	2,491,257	2,717,000	2,895,000
Sales to cooperative	−1,044,006	−1,235,000	−1,338,000
Payment from continuing fund	1,447,251	1,482,000	1,557,000
Western Farmers Electric Cooperative:			
Purchase of power and service charges	1,856,700	2,036,000	2,036,000
Sales to cooperative	−1,405,064	−171,000	−469,000
Payment from continuing fund	451,636	1,865,000	1,567,000
Oklahoma utility companies:			
Purchase of power	1,738,636	2,072,000	2,239,000
Sales to companies	−1,360,547	−1,782,000	−1,925,000
Payment from continuing fund	378,089	290,000	314,000
Texas Power & Light Co.:			
Purchase of power	625,415	811,000	763,000
Sales to company	−527,736	−644,000	−644,000
Payment from continuing fund	97,679	167,000	119,000
Proposed company-type contract:			
Purchase of power		389,000	
Sales to company		−360,000	
Payment from continuing fund		29,000	
Others: Purchase of power		318,000	11,000
Southwestern Electric Power Co. (interconnected system):			
Purchase of power and service charges	208,323		
Sales to company	−206,860		
Payment from continuing fund	1,463		
Emergency expenses	15,000	45,000	
Total purchase of power and service charges	7,623,982	9,199,000	8,825,000
Total rental of transmission facilities	704,190	908,000	886,000
Emergency expenses	15,000	45,000	
Total due customers	8,343,172	10,152,000	9,711,000
Amount of offset in settlement of accounts	−5,188,532	−5,107,000	−4,711,000
Total payments from continuing fund	3,154,640	5,045,000	5,000,000

PREFERENCE CUSTOMER SALES

Mr. WRIGHT. Now we get to something we talked a little bit about before, but I want to reiterate it to you with this chart. I gave the committee this little chart, which is not very readable, and we have replaced it with another chart showing the same information, which is more readable.

Under the Flood Control Act the Congress gave agencies such as ours certain instructions. One of those instructions was to get as widespread use of this power as we could get. Another instruction was that whenever we could, in the sale of power, within reason we

should see that preference customers got a preference in the sale and at the lowest rates consistent with sound business.

We have something now that I think justifies every bit of pain and labor we put in it, because in the United States as a whole, of all Federal power including ours, 30.5 percent of the Federal power generated gets to preference customers. Of that, about 8½ percent goes to cooperatives and about 20.1 percent goes to municipalities. But here in the Southwest, where, with the help and direction of this committee we have continually nourished this policy, 67 percent of every kilowatt-hour we had in 1959 went to REA cooperatives. That is not only what we generated but what we bought and exchanged and everything else.

Mr. CANNON. Is that due to an expansion of territory or expansion of demand?

Mr. WRIGHT. Sixty-seven percent of it was bought by REA cooperatives. About 8.9 percent, or approximately 9 percent, went to municipalities. So that, of our power, 76 percent went to the preference customers, not counting Government agencies, compared to a 30-percent average nationally; 23 percent went to the aluminum industry and one-half of 1 percent went to private companies.

RATES CHARGED TO REA COOPERATIVES

The astounding thing is the next chart I want to show you in conjunction with this. This chart lists the rates charged by 116 power companies in the United States to REA cooperatives. The SPA rate happens to be No. 20 or 21 in that list.

In the top 20 of those power companies, 17 of those companies are companies associated with the Southwestern Power Administration. And, of the top 10, 9 are tied up with us. So the companies with whom we were associated and contracted served the cheapest power in the United States, and they serve cheaper than I do.

Mr. CANNON. And they also serve areas which otherwise would not receive service at all?

Mr. WRIGHT. I do not think there is any question about that at all. The point I want to make is this: that the policy of marketing which was followed, of contracting and exchanging and interchanging, has resulted in two things: First, preference customers do get the power, and you will not find any articles in the magazines saying that they do not get their share of the power. They know they are getting it.

Second, the companies associated with us have been treated in such a fashion that their rates are lower than ours. They have had benefits out of this association so that, out of the 10 lowest rates of co-ops in the United States, 9 of them are associated with Southwestern Power Administration.

RATES FOR SALE OF POWER

I would like to quote the average rate of other Government agencies to other Government agencies in 1958:

Bonneville has a rate of 3.15 mills per kilowatt-hour.

TVA has a rate of 4.32 mills per kilowatt-hour.

The Bureau of Reclamation has a rate of 5.37 mills per kilowatt-hour.

Our effective date is 5.95 mills per kilowatt-hour, and our established rate at 50-percent load factor is 6.97 mills per kilowatt-hour, but our cooperatives have an average rate of 5.95 mills per kilowatt-hour.

The only Government rate higher than ours happens to be Southeastern, but, in the top 20 companies, 3 of them are associated with Southeastern Power. Only 1 company in the lowest 20 in the United States is in the area of the Bureau of Reclamation and Bonneville.

Mr. CANNON. That is a very gratifying record.

Mr. WRIGHT. Since I appeared before this committee last year we have completed some contracts—and I am sure Mr. Jensen will be interested in this—we have set up arrangements whereby we will contract with every company in the Southwest. We have made a contract now with the Southwestern Electric Power Co. under which we are practically designing the contract under which practically all the cooperatives in Texas and Louisiana will be served in a cooperative arrangement where this group of cooperatives buys the Government's power that it has, whatever it is, takes it and trades it for power and energy for their total requirement from now on. It involves a little over 30,000 kilowatt-hours and eight cooperatives in Texas and Louisiana.

We have already completed a contract for the service of cooperatives in the entire Texas Power & Light Co. area. That will be the type of contract under which the Gulf States Utility Co. utilized the output of McGee Bend. We are in the process of negotiating a contract in Arkansas that will utilize the power and energy off the main grid in the same way in conjunction with the steamplant the Arkansas cooperative will build. Then when Greers Ferry power comes in, we have an offer from Arkansas Power & Light Co. and from the Statewide Association of Arkansas that is sufficiently advantageous that we have no doubt Greers Ferry Dam power can be put in this arrangement and every REA cooperative in the Southwest will be able to acquire their choice of power supply from whomever they wish. Some still elect to buy from the companies, which I am very happy about.

Mr. JENSEN. By this integration of power and this close cooperation and good working arrangements between all of the power producing and transmission agencies involved, you contend that it has proven to be beneficial in rates charged to all concerned?

Mr. WRIGHT. I contend even more than that. I contend it was not only beneficial in rates charged, but assured the preference customers of getting their share as Congress directed, and it assured them of getting it without hurting anybody, and the companies have had enough benefit out of this thing that they can afford to meet the Government's rate.

You will recall the difficulty that used to exist of working together. We had a program in New Orleans where myself, as head of a Government agency, the vice president of one of the largest power companies, and the head of the largest REA in the United States entered into a program that was called public plus private power. Each wrote his own presentation, and then we sat as a panel to answer questions. The amazing thing was there was no disagreement, and our rates stacked up exactly with what the companies had found should be the case. The thing, to me, was something nobody dreamed

would be possible. We do not have any difficulty any more in picking up the telephone and talking to these people as though they were part of our own organization. It is a wonderful thing.

Mr. JENSEN. I can only say I compliment you most highly for the fine job you have done, and you have proven that people can work together—Government agencies, private institutions—to the benefit of all concerned. It has been a long struggle. I remember all the difficulties which we encountered. I remember all the problems which faced you, Mr. Wright, and all the problems which faced this committee. But we worked together and just had one purpose in mind, and that was to do the thing which was best for the people over the long pull, and that has proven to be good. I compliment you most highly.

Mr. WRIGHT. Thank you.

POWER SUPPLY WITHDRAWALS

Mr. CANNON. Mr. Wright, as I understand it, you provide power, you feed it into the co-ops, and the co-ops in turn can pass it on to the private utilities?

Mr. WRIGHT. They trade it.

Mr. CANNON. There is only one point there: You do not follow any practice which under any circumstances would give the private utilities a vested right in that power?

Mr. WRIGHT. No, sir.

Mr. CANNON. The co-ops always have a right to pull it back?

Mr. WRIGHT. Yes; they can review the rates every 5 years.

Mr. CANNON. They can always pull it back?

Mr. WRIGHT. Every 5 years, if they do not like the rates being charged, the contracts can be terminated.

Mr. CANNON. You made it clear it is not a case of rates, but they do retain the authority to pull it back?

Mr. WRIGHT. The authority springs from a provision in the contract between the co-op and the company that the rates provided in that contract are subject to review and, if either one does not like the rates or wants some other concession, that ends the contract.

Mr. CANNON. The thing with which this committee is most concerned is not a matter of rates, but they can withdraw the power themselves if they wish?

Mr. WRIGHT. That is correct.

Mr. CANNON. The public utilities do not have a vested right in it?

Mr. WRIGHT. No, sir.

Mr. PILLION. Mr. Chairman.

Mr. CANNON. Mr. Pillion.

Mr. PILLION. I would like to compliment the gentleman on his very fine statement, clear, understandable, and evidence of a very fine job being done.

Mr. CANNON. And I may supplement that by saying it shows remarkable administrative ability.

Mr. PILLION. Thank you, Mr. Chairman. That is better than I could have said it. It shows dedication, and I am very much impressed with the statement and completely agree, and want to compliment the gentleman on the philosophy and concepts that he has. The United States as a whole is the party of interest here, rather than any one particular group. I think this gentleman's report is one of the best I have listened to.

I might also say I wish the Administrator a complete and speedy recovery.

Mr. WRIGHT. Thank you.

Mr. CANNON. Dr. Fenton.

CHANGE IN RATES

Mr. FENTON. Mr. Wright, you review the contracts every 5 years, you say. During your period of administration, which has been a good many years now, I have always appreciated your testimony. Have you seen fit to change any of the rates?

Mr. WRIGHT. Yes. We had one very major adjustment. We had a 27-percent rate increase.

Mr. FENTON. That is very encouraging. Some contracts have been before us that have never had a change in rates.

Mr. WRIGHT. No human being can predict for 50 years.

Mr. Chairman, I would like to talk to the committee about 15 or 20 minutes more, because I have something about the future I want you to hear.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. The committee will stand adjourned until 2 o'clock.

TUESDAY, MARCH 8, 1960.

AFTERNOON SESSION

Mr. CANNON. The committee will come to order.

Mr. Wright, it is very kind of you to remain over for the afternoon session. We realize that you are just out of the hospital and that you ought to be careful. On that count, and because of the importance of your work, we are grateful to you for giving us this time this afternoon. You may proceed.

Mr. WRIGHT. Thank you, Mr. Chairman. I shall try to finish up in just a few minutes.

Mr. CANNON. I hope you will take all the time you desire.

OPERATION AND MAINTENANCE

Mr. WRIGHT. Thank you, Mr. Chairman. I have one more tabulation which I would like to place in the record at this point.

(The tabulation referred to follows:)

Table of investment for operation and maintenance appropriation obligation, fiscal years 1951–61

Fiscal year	Plant investment	Operation and maintenance appropriation obligation	Relation of operation and maintenance appropriation obligation to investment
			Percent
1951	$8,113,865	$638,565	7.87
1952	9,801,580	1,029,172	10.50
1953	13,726,672	1,112,812	8.11
1954	16,378,930	1,247,259	7.62
1955	21,116,979	836,581	3.96
1956	22,806,653	1,034,708	4.54
1957	23,245,343	877,050	3.77
1958	23,776,588	1,020,755	4.29
1959	24,407,255	1,031,211	4.23
1960	25,265,255	[1] 1,121,250	4.43
1961	26,590,255	[2] 1,250,000	4.70

[1] Appropriation.
[2] Estimate of appropriation.

Mr. WRIGHT. This tabulation is classified only by being a comparison of the capital investment with the annual operation and maintenance obligations of Southwestern Power. We think it is important because it indicates that there is a definite relationship now appearing between the capital investment; that is, the size of the system we are operating and the operation and maintenance necessary to operate it. It appears that that is going to level out at something between 4½ and 5 percent. The operation and maintenance will equal between 4½ and 5 percent of the capital investment, which we think is a very interesting statistic for this type of operation and something that I have not seen before.

Mr. CANNON. It is a very significant indicator.

Mr. WRIGHT. A very significant indication; yes, sir. When we started out, operation and maintenance was approximately 10½ percent of the capital investment, but, as this operation leveled out and became efficient and stabilized, we are now running at a very comparatively level rate, and I hope we will become a very fixed operation in the future.

Also, Mr. Chairman, I have a letter which I would like to insert in the record and in which I am sure the chairman will be interested. I think it is significant to the whole area. This is a letter from the Sho-Me Power Corp. of Missouri.

The letter reads as follows:

SHO-ME POWER CORP.,
Marshfield, Mo., February 1, 1960.

Mr. DOUGLAS G. WRIGHT,
Administrator, Southwestern Power Administration, Post Office Drawer 1619, Tulsa, Okla.

DEAR MR. WRIGHT: We wish to inform you that the City of Lebanon, Mo. has been entered into a new contract with the Sho-Me Power Corp., to purchase all their power requirements from Sho-Me at 69,000 volts off our "backbone" system.

They are in the process of installing new 69,000-volt substations in three or four locations within their city, all of which will be served by Sho-Me.

Cooperative effort between the Southwestern Power Administration and Sho-Me has made it possible for Lebanon, and ten other municipalities in south central Missouri, to obtain reliable central-station service at low cost in any amount they wish.

The result has been a financial savings to the people and an opportunity to gear their living to the great benefits possible in the all electric home.

Very truly yours,

C. E. BOULSON, *General Manager.*

Mr. WRIGHT. We think that is significant.

Mr. CANNON. It indicates how important this work is and what results have seen secured.

It would be impossible to estimate the advantages accruing to communities throughout your operating area from the Southwestern Power Administration under your wise and able administration.

Mr. WRIGHT. Thank you.

Mr. Chairman, questions were asked this morning indicating the committee's interest in the reliability of water estimates.

Twenty-five years ago I was given the responsibilty of making the water study for the entire Nebraska hydroelectric system. At that time I made a study which indicated, or estimated, that the average annual output of all hydroelectric projects in Nebraska would be 480 million kilowatt-hours a year.

The management of that system has paid me the honor of sending me the 17-year record of their operations, from 1943 to 1949, and their actual production was 483 million kilowatts a year, or I was accurate within one-half of 1 percent.

Mr. CANNON. Remarkable.

Mr. WRIGHT. I am very proud of that.

Now, about our budget——

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. Mr. Wright, it is my understanding that your undergraduate work was done at the United States Naval Academy?

Mr. WRIGHT. Yes, sir.

Mr. CANNON. It is very evident that you are an experienced and able engineer.

Mr. WRIGHT. Thank you.

Mr. Chairman, our budget this year is a very simple one.

CONSTRUCTION

The "Construction" items represent the expansion of existing facilities to enlarge them to carry the amount of power we already have contracted for.

The addition of a substation at Table Rock will have the effect of delivering power at the dam but will relieve the transmission line running up to Springfield, Mo. that much load and have the effect of increasing that transmission line's capacity that much. That is all we are asking for—the addition to our system to carry the power we have already sold.

OPERATION AND MAINTENANCE

In the "Operation and maintenance" budget we are asking for a level which will permit us to carry out about the level of personnel that we will have at the end of this fiscal year. The increase is due to the fact that we are establishing a new maintenance and operations

crew in the city of Springfield in order to handle the new line which has been built from Table Rock to Springfield, and to handle operation and maintenance of the line from Mansfield across to Carthage which we now carry out under contract. We have enough lines to justify the employment of this crew, which will be hired in April of this year, so that this year's budget, not having this crew in it except for 2 months, will establish a level that requires this operation and maintenance.

I am hoping that through our management improvement program that having established this level, we will be able in the future not to exceed it and, perhaps, to show this committee savings.

Mr. CANNON. When the reservoir is completely full will you be utilizing the full capacity of Table Rock, or is there still room for other units to be added later as needed?

BULL SHOALS DAM

Mr. WRIGHT. There will be no additional room at Table Rock when the four units contemplated go in. There is, however, room for two additional units at Bull Shoals Dam, which we need by 1963, and which the Corps of Engineers will include in its program.

Mr. CANNON. Bull Shoals is already producing more power than any other plant in your grid and, still, you say you would have room for two additional units?

Mr. WRIGHT. Mr. Chairman, the reason for that is very simple: When you put the Table Rock storage in on the White River above the Bull Shoals Dam, it has the identical effect as though you increase the Bull Shoals Reservoir. So, you can run additional units at the Bull Shoals Dam by virtue of the additional storage at the Table Rock Dam above it on the river.

Mr. CANNON. Those are the two units budgeted?

Mr. WRIGHT. In the mill now are units 5 and 6 and these would be units 7 and 8.

Mr. CANNON. You have them budgeted for planning?

Mr. WRIGHT. Units 5 and 6 are budgeted in planning. However, there will be eight units altogether at Bull Shoals.

Mr. CANNON. It will be a dam of tremendous capacity.

Mr. WRIGHT. Yes, sir.

Mr. CANNON. How does it compare in potential capacity with Table Rock, merely in order to give us an idea?

Mr. WRIGHT. Bull Shoals Dam will have 340,000 kilowatts and Table Rock will have 200,000. The two of them will have as much capacity as all of the dams I now have on my grid. We will be able to market this power without additional transmision construction.

Now, Mr. Chairman, I have four other points which I have labeled future items for committee discussion.

CONSTRUCTION

Mr. CANNON. Before you proceed with that, we shall insert at this point in the record pages 1 through 8 of the justifications.

(The pages referred to follow:)

SOUTHWESTERN POWER ADMINISTRATION

Construction

Appropriation Act, 1960		$858,000
Unobligated balance from prior year		285,725
Total available, 1960		1,143,725
Decreases:		
Construction in progress	$285,725	
New construction and additions	858,000	
		1,143,725
Base, 1961		
Increases:		
New construction and additions		1,325,000
Budget estimate, 1961		1,325,000

Analysis by activities—Construction

Activities	Amount available, 1960	Decrease	Base, 1961	Estimate, 1961	Increase
1. Construction in progress	$285,725	$285,725			
2. New construction and additions	858,000	858,000		$1,325,000	$1,325,000
Total	1,143,725	1,143,725		1,325,000	1,325,000

Program summary, fiscal year 1961

Activity and project	Estimated cost	Program, fiscal year 1961
NEW CONSTRUCTION AND ADDITIONS		
Plant interconnection project:		
Table Rock substation	$450,000	$450,000
System metering, relay and communications	25,000	25,000
Total	475,000	475,000
Extension of cooperatives, public bodies and others:		
Clinton substation addition	375,000	375,000
Doniphan and/or Idalia substation addition	285,000	285,000
Total	660,000	660,000
General plant and equipment	70,000	70,000
Administration and engineering	120,000	120,000
Total new construction and additions	1,325,000	1,325,000
Total—Construction	1,325,000	1,325,000

JUSTIFICATION

CONSTRUCTION, $1,325,000

New construction and additions

Plant interconnection projects

Table Rock substation 161/69 kilovolt (item 3), $450,000.—Construction of a 161/69-kilovolt stepdown substation adjacent to the Table Rock powerplant is required to deliver power and energy to the transmission system of the KAMO Power Cooperative and to other REA distribution cooperatives serving the rapidly developing areas adjacent to Table Rock Reservoir. Much of this power must now be delivered over transmission and distribution circuits from our Springfield substation. Installation of this stepdown transformer capacity will therefore relieve the contemplated overload of Springfield transformers and defer a transformer addition at that station.

System metering, relay and communications, $25,000.—Funds in the amount of $25,000 will be required during fiscal year 1961 to provide for certain modifications to load control equipment at the Springfield load dispatching office required with the completion of additional hydro generating units by the Corps of Engineers in this control area. These funds will also provide for the initiation of a program of replacement and modernization of VHF radio equipment to conform with the new narrow band requirements of the Federal Communications Commission.

Extensions to cooperatives, public bodies, and others

Clinton substation addition No. 3 (item 4), $375,000.—Funds are required in the amount of $375,000 to provide for an increase in 161/69 kilovolts transformer capacity at the Clinton substation to implement a contractual arrangement with the Missouri Public Service Co. and permit the full integration of their transmission system with that of the Government. The existing facilities at Clinton are capable of delivering approximately 10,000 kilowatts of capacity, hence the need for additional facilities to deliver up to the 30,000 kilowatts of peaking capacity contemplated by the contract.

Doniphan and/or Idalia substation addition No. 1 (item 5), $285,000.—Funds are required in the amount of $285,000 to provide additional 161/69 kilovolts transformer stepdown capacity to serve the M. & A. Power Cooperative and the cities of Sikeston and Poplar Bluff who secure delivery of power and energy from the Government over the M. & A. transmission system. Estimated power requirements for 1963 loads for these customers indicate the existing transformer capacities at our Doniphan and Idalia substations will be inadequate. System studies are now being made by the cooperative to determine if this additional capacity will be required at Doniphan or at Idalia, or both, or at an additional point of delivery now under network analyzer study on the Norfolk-Doniphan 154-kilovolt line near Pocahontas, Ark.

General plant and equipment, $70,000

These funds are requested to continue a program started in fiscal year 1960 of replacement of automotive vehicles other than passenger carrying, which are utilized in the maintenance and operation of the Administration's transmission lines and substations. Much of the remainder of this equipment will have been in service over 10 years and its continued use will not be up to required standards for dependability and personnel safety. This estimate also includes funds for the acquisition of material and equipment required in the normal process of operation and maintenance of the transmission system. Minor modifications and necessary improvements to existing facilities not covered by specific budgeted items are to be provided from these funds.

Administration and engineering, $120,000

This estimate covers the cost of personal services, travel, and other objects in connection with the construction program for fiscal year 1961.

Tabulation by activity showing fund requirements for personal services, travel, other objects, plant and equipment, and projects follows:

Itemization of estimate

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (-)
Program and financing:			
Total obligations	$1,143,725	$1,325,000	+$181,275
Obligations by objects:			
01 Personal services	103,000	95,000	−8,000
02 Travel	13,000	15,000	+2,000
03 Transportation of things	4,000	4,500	+500
04 Communication services	500	500	
06 Printing and reproduction	4,000	5,000	+1,000
07 Other contractual services	23,225	25,000	+1,775
08 Supplies and materials	300,000	315,000	+15,000
09 Equipment	177,500	205,000	+27,500
10 Land and structures	514,500	655,000	+140,500
11 Grants, subsidies and contributions: Contributions to retirement fund	4,000	5,000	+1,000
Total obligations	1,143,725	1,325,000	+181,275

UNOBLIGATED BALANCES

Mr. CANNON. What unobligated balances are you now projecting for the fiscal year 1960?

Mr. WRIGHT. We expect the sum of $955,000 to be unobligated in the continuing fund, and it is my guess that, while we had an expenditure of $45,000 for an emergency use out of the continuing fund, we will probably be able to save something on the order of $25,000 to $30,000 out of the "Operation and maintenance" appropriation to apply against that emergency expenditure.

In addition, I think we will be able to absorb this $10,500 expense caused by the new health program which goes into effect on the 1st of July.

Mr. CANNON. How does that compare with the previous year?

Mr. WRIGHT. In the previous year we had an extremely tight budget, and I believe we finished up about within $1,000 or less of spending everything we had. Is that about right?

Mr. CONDER. Yes. We spent $1,031,211.

Mr. CANNON. And how much was the appropriation?

Mr. CONDER. The appropriation was $1,031,250.

Mr. WRIGHT. We spent within $39 of the total.

Mr. CANNON. Your carryover was in the amount of $285,725?

Mr. WRIGHT. In "Construction." That was work underway that was not paid for or obligated yet, but all programed.

Mr. CANNON. On that same basis, what will you have by June of this year?

Mr. WRIGHT. By June of this year we have no carryover projected.

Mr. CANNON. That is, unobligated on "Construction."

Mr. WRIGHT. The carryover in the next year?

Mr. CONDER. We presently anticipate obligating all of the "Construction" funds.

Mr. WRIGHT. They will be obligated, but how much will be unexpended? It is estimated that $420,000 will be unexpended June 30, 1960.

CLINTON SUBSTATION

Mr. CANNON. I notice on the Clinton substation you are asking for $375,000 for additional transformer capacity.

Mr. WRIGHT. Yes, sir.

Mr. CANNON. That is apparently necessary as the result of your recent contract with the Missouri Public Service Co.?

Mr. WRIGHT. Yes, sir.

Mr. CANNON. What efforts are being made to get the company to carry this cost?

Mr. WRIGHT. Mr. Chairman, the companies are building the interconnecting lines right to our grid. This thing that we are building is an increase in the transformer capacity which we already have in the system, and it would be impossible to have a dual ownership of this transformer capacity because its effect will not be limited to the Missouri Public Service Co.

We have an additional requirement where Sho-Me is interconnected and Central may well come into it and later N.W. may come into it, all using this capacity. What we are doing is this: We have a certain size valve in this line now covered by this transformer capacity and we

have to increase that to pass the added power that comes about when Bull Shoals and Table Rock come in. We would have to do it whether we marketed the Missouri Public Service or others. We may well recapture all Missouri Public Service power in 1964. As a matter of fact, we know we are going to recapture some.

Mr. CANNON. Is that the only beneficiary of the installation?

Mr. WRIGHT. No. Everybody that is connected up there is a beneficiary. N.W. has some service they will get out of it; Sho-Me has some which they would get out of it; and others. We would not have a stable system without this for anyone.

GENERAL PLANT AND EQUIPMENT

Mr. CANNON. May we have a breakdown of the $70,000 item for "general plant and equipment"?

Mr. WRIGHT. Yes, sir.

Mr. CANNON. Will you please insert that information in the record.

Mr. WRIGHT. Yes, sir.

(The information requested follows:)

2 carryalls	$5,000
2 power wagons	7,000
1 jeep station wagon (4-wheel drive, with winch)	3,000
3 jeep pickups (4-wheel drive)	8,350
1 flatbed truck (4-wheel drive, with winch)	11,000
Radio equipment	11,250
Test equipment	8,000
Line and substation equipment	15,000
Office furniture and fixtures	1,200
Total	70,000

Mr. CANNON. In that connection, are you purchasing anything you already have in stock?

Mr. WRIGHT. I think very few items. We are purchasing out of that, I think, six automobiles, four of which are replacements and two of which will be used by this new transmission-line crew and the maintenance unit. We follow the policy, generally speaking, of providing Government automobiles for those people who are in the field and, for highway travel, generally speaking, the personnel use their own cars for that.

OPERATIONS AND MAINTENANCE

Mr. CHAIRMAN. On "Operation and maintenance," you are asking for $1,250,000?

Mr. WRIGHT. Yes, sir.

Mr. CANNON. At this point in the record we shall insert pages 10 through 19 of the justifications.

(The pages referred to follow:)

ANALYSIS BY ACTIVITIES

Operation and maintenance

Activities	Amount available, 1960	Estimate, 1961	Increase
1. System operation and maintenance	$731,000	$800,000	$69,000
2. Power contracts and rates	88,000	100,000	12,000
3. General administration	302,250	350,000	47,750
Total	1,121,250	1,250,000	128,750

Operation and Maintenance

GENERAL STATEMENT

The estimate of $1,250,000 for the operation and maintenance program for fiscal year 1961 provides for operating and maintaining the transmission system, carrying on power-marketing negotiations, providing customer services, and administering the contracts between the Administration and certain generating and transmission cooperatives.

The 1960 fiscal year appropriation of $1,121,250 was carried out as follows: System operation and maintenance, $731,000; power contracts and rates, $88,000; and general administration, $302,250.

The estimate for fiscal year 1961 of $1,250,000 includes the following activities and amounts: System operation and maintenance, $800,000; power contracts and rates, $100,000; and general administration, $350,000.

The increase of $128,750 is distributed by activity as follows: System operation and maintenance, $69,000 for an additional line crew, two instrument repairmen, a draftsman and an engineering aid employed during the latter part of fiscal year 1960, and two substation operators to be employed in fiscal year 1961. Power rates and contracts, $12,000 for a public utility specialist, and the filling of vacant positions during the current year. General administration, $47,750, provides for additional personnel in the division of administrative services and sufficient funds to finance the administrative staff from the "Operation and maintenance" appropriation for the entire year.

JUSTIFICATION

System operation and maintenance, $800,000

$800,000 is requested for operation, maintenance, and engineering for fiscal year 1961, an increase of $69,000 over fiscal year 1960.

This activity includes the dispatching of power from nine hydroelectric generating plants in the southwest power area, maintenance of 1,061 miles of high-voltage transmission lines, seven substations, eight switching stations and appurtenant facilities. This system interconnects the Administration's hydroelectric power facilities with generating and transmission cooperatives and private utility systems in the southwest area, to obtain maximum benefits from integration of hydroelectric and thermal generation.

To insure continuity of service and assure reliable service to its customers the operation, maintenance, and engineering of the Government's integrated system, it is necessary to maintain a staff of engineers, maintenance crews, and operations personnel.

Three line-maintenance crews have maintained the Administration's lines through fiscal year 1959, with a fourth crew to be added in fiscal year 1960, upon completion of the Springfield-Table Rock Dam line. These crews are stationed at strategic points along the 1,061 miles of high-voltage line to be able to best perform their duties with the least amount of travel. The new crew is to be stationed in the Springfield area to maintain the Mansfield-Springfield-Carthage line and the Springfield-Table Rock Dam line, a total of 138 miles. This location, due to other facilities located in the Springfield area, is the most economical for the maintenance of present facilities. The three crews employed during fiscal year 1959 are located at Ada and Muskogee, Okla., and Doniphan, Mo. These locations were selected, giving consideration to accessibility to systems to be maintained, communications, terrain, transportation, and housing. These crews maintain a total of 923 miles of line extending from Payne, Tex., near the Denison Dam to Idalia, Mo., in the southeast corner of Missouri.

Two substation maintenance crews perform the maintenance of the substations, switching stations, meters, relays, electrical and electronic equipment. Two additional instrument repairmen are to be employed during fiscal year 1960.

During fiscal year 1960, 13 additional employees are to be employed in this activity. This includes an additional line crew of seven to be added in the fourth quarter, two instrument repairmen in the third or fourth quarter, two engineers in the fourth quarter, an engineer and a draftsman as early as possible.

During fiscal year 1961, two substation operators are needed, one for the Clinton substation and one for the Gore substation. The increased costs for personal services during the budget year are estimated at $67,000 to finance the 13 positions added during the latter part of fiscal year 1960 and the substation operators added in the budget year. Increase in travel is estimated at $2,000, making a total increase of $69,000.

Additional passenger cars requested in the 1961 fiscal year are for the additional line crew and the instrument repairmen added in fiscal year 1960. No increase in funds is estimated for the purchase of these two cars, as anticipated savings in other objects are expected to absorb the increase.

The following tabulation reflects the estimated obligations by organizational unit under this activity:

System operation and maintenance—Operation and maintenance

Organizational unit	1960		1961		Increase (+) or decrease (−)	
	Number	Amount	Number	Amount	Number	Amount
DIVISION OF OPERATIONS AND ENGINEERING						
Chief's Office	6.0	$49,046	6.0	$49,587		$541
Branch of Engineering and Planning	11.0	78,874	11.0	79,561		687
Branch of Maintenance	61.0	331,821	61.0	332,861		1,040
Branch of Operation	10.0	68,266	12.0	79,188	2	10,922
Total permanent	88.0	528,007	90.0	541,197	2	13,190
Deduct lapses	5.7	33,307	.7	4,347	−5	28,960
Net permanent	82.3	494,700	89.3	536,850	7	42,150
Temporary employment				20,000		20,000
Other personal services		26,300		25,150		−1,150
Personal services		521,000		582,000		61,000
Travel		80,000		80,000		
Other objects		130,000		138,000		8,000
Total, system operation and maintenance		731,000		800,000		69,000

Power contracts and rates, $100,000

$100,000 is required in fiscal year 1961 to perform the functions related to power contracts and rates. This is an increase of $12,000 over the amount available during fiscal year 1960. This amount is needed for the financing of one additional position added during fiscal year 1960, for the entire fiscal year 1961, for increased travel and for additional funds in other objects.

Power contracts and rates activity carries out the negotiation of contracts with preferred customers, public bodies, and private utility companies for the purchase, sale, interchange of electric power and energy, and for wheeling of Government power over the various transmission systems in the area. Analyze power rates to insure sufficient revenue to amortize the Government investment. Calculate rates and prepare payout studies for submission to the Federal Power Commission for approval. Performs customer service in connection with all contractual agreements.

The Branch of Customer Service performs service functions required on existing contracts, negotiates new contracts and amendments. The following indicates the workload of this Branch:

	1959	1960	1961
Existing power contracts	60		
Power contracts under negotiation	15	13	13
Amendments	65	65	65

The Branch of Rates and Statistics makes rates and payout studies and prepares special reports in connection with these studies. The following indicates the workload of this Branch:

	1959	1960	1961
Load studies	2	2	3
Payout studies	1	3	4
Cost allocation studies	6	6	8
Power rate analysis studies	4	6	6
Other studies	4	4	4

Power contracts and rates—Operation and maintenance

Organizational unit	1960		1961		Increase (+) or decrease (−)	
	Number	Amount	Number	Amount	Number	Amount
DIVISION OF RATES AND CUSTOMER SERVICES						
Chief's Office	3.0	$20,405	3.0	$20,654		$249
Branch of Customer Services	6.0	38,438	6.0	38,891		453
Branch of Rates and Statistics	4.0	24,419	4.0	24,918		499
Total permanent	13.0	83,262	13.0	84,463		1,201
Deduct lapses	2.1	12,402	.5	3,183	−1.6	9,219
Net permanent	10.9	70,860	12.5	81,280	1.6	10,420
Other personal services		1,140		720		−420
Personal services		72,000		82,000		10,000
Travel		6,000		6,000		
Other objects		10,000		12,000		2,000
Total, power contracts and rates		88,000		100,000		12,000

General administration, $350,000

An increase of $47,750 in this activity is required for fiscal year 1961 over the amount provided for fiscal year 1960.

Functions included in this activity are executive direction, management, inspection and audit, personnel, fiscal services, budget, administrative services, office services, legislative functions, and public relations.

The increase provides additional personnel in this activity to perform functions required by the Department of the Interior in connection with inspection, internal audit, and employment practices. There is also provided personnel in line with Civil Service Commission recommendations. The current year funds are insufficient to provide adequate personnel to properly perform the current workload within time limits required for submitting reports, information, and other data requested by various sources. The present staff cannot perform required functions of inspection, audit, and safety and maintain an efficient operation of other duties. Backlogs exist in the Branch of Budget and Finance and in the Branch of Office Services: additional employees are needed in both branches to remedy a situation created through lack of sufficient funds.

Personnel to be recruited during the latter part of fiscal year 1960 which will require funds for the entire year during fiscal year 1961 are safety officer, personnel assistant, stock-control clerk, and two clerk-stenographers. Also, two accounting clerks to fill present vacancies are to be recruited. One addi-

tional accounting clerk is to be added during fiscal year 1961. Included in the increase are sufficient funds to finance administration expenses entirely from the "Operation and maintenance" appropriation. It was necessary to finance approximately $22,000 from the "Construction" appropriation during fiscal year 1960.

The following tabulation shows the fund requirements for this activity by personal services, travel, and other objects:

General administration—Operation and maintenance

Organizational unit	1960		1961		Increase (+) or decrease (−)	
	Number	Amount	Number	Amount	Number	Amount
OFFICE OF THE ADMINISTRATOR						
Immediate office	11.0	$83,679	11.0	$84,946		$1,267
DIVISION OF ADMINISTRATIVE SERVICES						
Chief's Office	3.0	23,171	3.0	23,400		229
Branch of Budget and Finance	15.0	92,289	16.0	97,656	1	5,367
Branch of Office Services	18.0	92,621	18.0	94,328		1,707
Total, Division of Administrative Services	36.0	208,081	37.0	215,384	1	7,303
Total permanent	47.0	291,760	48.0	300,330	1	8,570
Deduct lapses	6.1	36,524	0.3	1,857	−5.8	34,667
Net permanent	40.9	255,236	47.7	298,473	6.8	43,237
Other personal services		4,014		2,527		−1,487
Personal services		259,250		301,000		41,750
Travel		21,000		21,000		
Other objects		22,000		28,000		6,000
Total general administration		302,250		350,000		47,750

Itemization of estimate

	Estimate, 1960	Estimate, 1961	Increase (+) or decrease (−)
Program and financing: Appropriation act	$1,121,250	$1,250,000	+$128,750
Obligations by objects:			
01 Personal services	852,250	965,000	+112,750
02 Travel	107,000	107,000	
03 Transportation of things	1,500	2,000	+500
04 Communication services	22,000	22,000	
05 Rents and utility service	17,000	18,000	+1,000
06 Printing and reproduction	6,000	6,000	
07 Other contractual services	24,000	36,500	+12,500
08 Supplies and materials	39,000	40,000	+1,000
09 Equipment	4,500	4,500	
11 Grants, subsidies, and contributions: Contribution to retirement fund	44,000	45,000	+1,000
13 Rewards, awards, and indemnities	2,000	2,000	
15 Taxes and assessments	2,000	2,000	
Total obligations	1,121,250	1,250,000	+128,750

Mr. CANNON. Can you give us the details on the need for the increase of $128,750 in this item?

TRANSMISSION LINE CREW

Mr. WRIGHT. Yes, sir. The main increase is occasioned by the fact that in this year's budget this new transmission-line crew and the attendant expense is in our budget only from the 30th of April until

the 30th of June—2 months, May and June. It will be in the whole year, next year.

In addition to that new transmission-line crew, this budget provides shifting from "Construction" over to "Maintenance and operation" about $22,000 of engineering expense which we have previously divided up but which is performed by regular members of our staff, and, while there is provision that we charge that capitalwise, we think it is very wrong to continue to ask for "Construction" appropriations to carry part of our regular staff, and we have made that shift in this budget to attain, Mr. Chairman, what I hope will be a normal operating level. It is my considered opinion that, having obtained this through the management-improvement program, we may well be able to come in in the future with a somewhat lower budget than $1,250,000, and we may well be able to save a little bit this year. But we can never do it until we get a level from which to establish these improvement programs.

INCREASES

I had my people prepare, Mr. Chairman, a comparison, item by item, which I would be very glad to furnish the committee and which shows exactly where every increase is.

Mr. CANNON. It will be included in the record at this point.

(The matter referred to follows:)

Construction appropriation

ANALYSIS OF CHANGES IN 1961 APPROPRIATION

	Available, 1960	Estimate, 1961	Increase (+) or decrease (−)
Appropriation	$858,000	$1,325,000	+$467,000
Unobligated funds from prior year	285,725		−285,725
Total available for obligation	1,143,725	1,325,000	+181,725

CHANGES IN ADMINISTRATION AND ENGINEERING

Personal services	$103,000	$95,000	−$8,000
Permanent positions: Increase 1 position, electronic engineer, net cost			+5,500
Temporary employment: Additional w.a.e. and intermittent employees required for increased construction program			+7,800
Other personal services: Overtime, etc			+700
Increases, 1961			+14,000
Positions prorated between "Operation and maintenance" and "Construction" appropriations in 1960 to be financed from "Operation and maintenance" in 1961			−22,000
Net decrease, personal services			−8,000
Travel: Estimated increase in travel for fiscal year 1961, resulting from increased construction program	13,000	15,000	+2,000
Other objects: Estimated increase in supplies, contractual services and related costs for increased program	4,000	10,000	+6,000
Total, administration and engineering	120,000	120,000	0
Projects:			
Substations and substation additions	871,000	1,110,000	+239,000
System communications	77,000	25,000	−52,000
General plant and equipment	75,725	70,000	−5,725
Total projects	1,023,725	1,205,000	181,275
Total estimated obligations	1,143,725	1,325,000	181,275

Construction appropriation—Continued

CHANGES IN ADMINISTRATION AND ENGINEERING.—Continued

Detail of projects	Carryover funds, 1960	Appropriation, 1960	Appropriation, 1961	Increase (+) or decrease (−)
Projects under construction prior to 1960:				
Springfield substation	$65,000			−$65,000
Springfield-Table Rock line	104,000			−104,000
Hermann substation	14,000			−14,000
Tupelo switching station	25,000			−25,000
System communications	37,000			−37,000
General plant and equipment	20,725			−20,725
New construction, 1960 and 1961:				
Clinton substation addition No. 2		$253,000		−253,000
Welcetka substation addition No. 2		410,000		−410,000
Table Rock substation			$450,000	+450,000
Clinton substation addition No. 3			375,000	+375,000
Doniphan and/or Idalia substation			285,000	+285,000
System communications		40,000	25,000	−15,000
General plant and equipment		55,000	70,000	+15,000
Total projects	265,725	758,000	1,205,000	+181,275
Total projects (brought forward)	265,725	758,000	1,205,000	+181,275
Administration and engineering	20,000	100,000	120,000	
Total obligations	285,725	858,000	1,325,000	+181,275

During fiscal year 1961 the $25,000 for "System metering and relay and communications" is required replacement and modernization of VHF radio equipment to conform with the new narrow-band requirements of the Federal Communications Commission, and to provide modifications of load-control equipment at the Springfield load-dispatching office.

The $70,000 for "General plant and equipment" provides funds for trucks and other equipment, which cannot be furnished from equipment on hand, for the new line crew, for replacement of equipment which is obsolete or that has been in service beyond established service standards and does not meet standards of dependability or safety. Also, for material required for normal operation and maintenance functions.

Operation and maintenance appropriation

ANALYSIS OF CHANGES IN 1961 APPROPRIATION

	Actual, 1960	Estimate, 1961	Increase (+) or decrease (−)
Appropriation	$1,121,250	$1,250,000	+$128,750

SUMMARY OF INCREASES

Activity:			
System operation and maintenance	$731,000	$800,000	+$69,000
Rates and customer services	88,000	100,000	+12,000
General administration	302,250	350,000	+47,750
Total	1,121,250	1,250,000	+128,750
Costs by object:			
Personal services	852,250	965,000	+112,750
Travel	107,000	109,000	+2,000
Other objects (retirement, insurance, supplies, rents, communications, gas, etc.)	162,000	176,000	+14,000
Total	1,121,250	1,250,000	+128,750

SUMMARY OF CHANGES BY ACTIVITY

SYSTEM OPERATION AND MAINTENANCE

	Increase (+) or decrease (−)
Personal services:	
Permanent:	
1. 2 substation operators at an annual salary of $10,200 are to be recruited in 1961. Estimated cost	+$6,000
2. 13 positions recruited during 1960 at an annual rate of $73,000 are estimated to cost $37,000 in 1960. These positions are estimated at the full annual rate during 1961, an increase of $36,000	+36,000
Positions recruited during 1960: 3 engineers, 1 draftsman, 2 instrument repairmen, line crew of 7.	
Temporary: Intermittent employees for the rights-of-way program are estimated to cost $20,000 in 1961. This program was financed from the continuing fund in 1960	+20,000
Other personal services: Overtime and other personal services are estimated to be $1,000 less in 1961	−1,000
Travel: Increase in travel during 1961 is estimated at $2,000	+2,000
Other objects: Related costs for all of these positions is estimated at $6,000 for 1961	+6,000
Total increase, system "Operation and maintenance" activity	+69,000

POWER CONTRACTS AND RATES

Personal services: Permanent—The recruitment of an additional rate examiner in 1960, and the filling of existing vacancies are estimated to cost $10,000 in 1961. The delay in filling the positions during 1960 is estimated to have saved 1 man-year	+10,000
Other objects: Related costs for above positions	+2,000
Total increase, rates and customer service	+12,000

GENERAL ADMINISTRATION

Personal services: 1 accounting clerk at an annual rate of $4,900 is to be recruited during 1961 at an estimated cost of $4,000. The recruitment for 7 positions in 1960 at an annual rate of $32,000 is estimated to cost $16,250 during 1960, and the entire annual rate in 1961, an increase of $15,750. Positions prorated in 1960 between "Construction" and "Operation and maintenance" appropriations are to be financed from this activity in 1961 at an increase in costs of $22,000. Total increase for personal services	+41,750
Positions recruited during 1960: Safety officer, personnel assistant, stock-control clerk, 2 accounting clerks, 2 stenographers.	
Other objects: Related costs for above positions	+6,000
Total increase, general administration	+47,750
Total increase, "Operation and maintenance" appropriation	+128,750

POWER CONTRACTS AND RATES

Mr. CANNON. I note in your justifications that power contracts and schedules are requested at the rate of $100,000 this year. Now, apparently, this same item the previous year was $88,000 and you increased it up to $100,000?

Mr. WRIGHT. Yes, sir.

Mr. CANNON. And, apparently, there has been for several years a slow, steady increase. How do you account for the need for additional funds from year to year?

Mr. WRIGHT. Mr. Chairman, it is simply the volume of work. We were marketing, or undertaking to market, a certain number of kilowatts and a certain number of kilowatt-hours. As our system has increased and as the complexity of this service increases, this expense has required us to build a staff being capable of performing a certain amount of service with each area. I feel that we have arrived at about the level at which we will be able to stabilize, for this reason: Previously, practically all of the planning and thinking and working for this program had to be initiated, and the primary work of it carried by us, and, as the chairman knows, for several years you and I have discussed the possibility of getting these people to form a coordinating group and a planning group for the whole unit out there, which will undertake a great deal of the work that previously we have had to take at least the initiative in. This group is now in the process of being set up, and I am very happy to report to you that our marketing

expense will stabilize very close to a figure of $100,000. It will not continue to increase as it has in the past.

TRANSMISSION LINES

Mr. CANNON. How many miles of line do you expect to add to the system this year?

Mr. WRIGHT. We are adding to the system this year the line from Table Rock to Springfield, which is approximately 40 miles, at 161,000 volts.

Mr. CANNON. That is an extension?

Mr. WRIGHT. Yes, sir. That will give us about 1,061 miles and, in addition to that, we have been paying under contract in our exchange arrangement with Northwest for their maintenance and operation of the line from Mansfield to Springfield across to Carthage, which operation our own crew will now undertake in lieu of our arrangement with Northwest. They simply operated it for us until we got in a position where we could physically do it.

Mr. CANNON. I see that you require seven additional men for maintenance.

Mr. WRIGHT. That is right. That level was established with the committee last year when you granted us the establishment of that crew in April. We told you last year we needed to hire them in April, which is when we will hire them.

Mr. CANNON. You will need an additional force for maintenance, but you will not need additional crew to this extent in the future?

Mr. WRIGHT. No; we will not be adding any more crews. We think we will be adding very little transmission lines. I have an idea that one transmission line we may require may be a connection from the Beaver Dam to the Table Rock Dam. The other lines to Beaver out will be constructed by other people. We probably will not require any transmission line. We have a reasonable chance of not requiring any transmission line for either Greers Ferry or Dardanelle. We will handle that contractually.

CONTINUING FUND

Mr. CANNON. Your continuing fund is estimated to be $5 million for the year 1961.

We shall insert at this point in the record pages 21 through 35 in the justifications.

(The pages referred to follow:)

ANALYSIS BY ACTIVITIES

Continuing fund

Activities	Amount available, 1960	Decrease	Base, 1961	Estimate, 1961	Increase
1. Purchase of energy and wheeling charges	$4,092,000		$4,092,000	$4,114,000	$22,000
2. Rentals for use of transmission facilities	908,000	$22,000	886,000	886,000	
3. Emergency expenses	45,000	45,000			
Total	5,045,000	67,000	4,978,000	5,000,000	22,000

JUSTIFICATION (CONTINUING FUND)

Power purchases, wheeling charges, and rental of facilities, $5,000,000

The estimate of $5,000,000 for fiscal year 1961 is a decrease of $45,000 under the $5,045,000 available for fiscal year 1960. The 1961 estimate includes $4,114,000 for the activity "Purchase of energy and wheeling charges," an increase of $22,000 over the $4,092,000 available for fiscal year 1960; $886,000 for the activity "Rentals for use of transmission facilities," a decrease of $22,000 under the $908,000 available for fiscal year 1960; no amount is included in the 1961 fiscal year for "Emergency expenses," a decrease of $45,000 under the amount available for fiscal year 1960.

During fiscal year 1960, $45,000 was used from the continuing fund for emergency brush control due to the heavy growth of brush and trees in some areas on the rights-of-way. This action was necessary to insure continuity of service, and could not be financed from the regular "Operation and maintenance" appropriation.

There is no change in the estimated expenditures in fiscal year 1961 as compared to fiscal year 1960. Changes in contractual arrangements during the year result in a decrease of purchases of power and wheeling charges and rental of facilities of $103,000. Estimated gross sales during the year decrease $453,000, resulting in a $350,000 decrease in receipts during fiscal year 1961. Estimates for fiscal year 1961 are based on an average between a normal water year and a critical water year.

Obligations to be incurred during the fiscal year 1961 under the continuing fund are based upon contractual arrangements for the purchase and sale of power, including wheeling charges for transport of power, with private utilities and municipalities in the area, and for the purchase of power and lease of transmission capacity from power cooperatives in the area. Estimated fund requirements by activities and by utility company or cooperative are as follows:

Power purchases, wheeling charges, and rental of facilities, $5,000,000

Obligations to be incurred during the fiscal year 1961 under the continuing fund are based upon contractual arrangements for the purchase and sale of power, including service charges for transport of power with private utilities and municipalities in the area, and for the purchase of power and lease of transmission capacity from power cooperatives in the area. Estimated fund requirements by activity are listed.

	Purchase of energy and wheeling charges	Rental for use of transmission facilities	Total
1. Central Electric Power Cooperative	$1,016,000	$416,000	$1,432,000
2. NW. Electric Power Cooperative, Inc	1,087,000	470,000	1,557,000
3. Western Farmers Electric Cooperative	1,567,000		1,567,000
4. Oklahoma utility companies	314,000		314,000
5. Texas Power & Light Co	119,000		119,000
6. Others	11,000		11,000
Total	4,114,000	886,000	5,000,000

The estimated fund requirements have been calculated in accordance with provisions within individual contracts and are presented herewith.

Purchase of power, service charges, rental of transmission facilities, gross sales, receipts deposited, and expenditures from continuing fund, fiscal year 1961

	(1) Purchase of power and service charges	(2) Rental of transmission facilities	(3) Gross sales and gross revenue	(4) Amount of offset in settlement	(5) Net revenue and receipts deposited (col. 3—col. 4)	(6) Expenditures from continuing fund (col. 1+col. 2—col. 4)
1. Central Electric Power Cooperative:						
A. Charges by cooperative:						
(1) Purchase of power, 111,700,000 kilowatt-hours (85 percent P.F.):						
Total investment generation facilities:						
$\frac{\$4,246,732 \times 4 \times 12 \text{ months}}{1,000}$ $204,000						
111,700,000 kilowatt-hours times $0.00325 (fuel cost) 363,000						
Administration and overhead: $8,000×12 months 96,000						
Operation, maintenance and replacements $10,000 times 12 months 120,000						
Total purchase of power 783,000						
(2) Service charges on 69 kilovolt facilities:						
Central's 69-kilovolt facilities 29,325						
Culvre River Electric Cooperative 8,375						
Co-Mo Electric Cooperative 5,760						
Central Missouri Cooperative 3,840						
Service charges by month 47,300						
Total service charges by year (12×47,300) 568,000						
Total purchases of power and service charges	$1,351,000			[1] $335,000		$1,016,00
(3) Rental of transmission facilities:						
Payment, 154-kilovolt transmission investment:						
$\frac{\$5,497,059 \times 4 \times 12 \text{ months}}{1,000}$ $264,000						
Estimated overhead [2] 40,000						
Estimated operation, maintenance, and replacements [3] 112,000						
Total rental of transmission facilities		$416,000				416,000
B. Sales to cooperative (F-1 rate) (2,800 hours use):						
13,000 kilowatts and 36,400,000 kilowatt-hours						
36,400,000 kilowatt-hours times $0.00921			[1] $335,000			
Central Electric Power Cooperative total	1,351,000	416,000	335,000	335,000		1,432,000
2. N. W. Electric Cooperative:						
A. Charges by cooperative:						
(1) Purchase of power, 282,000,000 kilowatt-hours (85 percent						

36,900,000 kilowatt-hours times $0.00921			[1] $335,000			
Central Electric Power Cooperative total	1,351,000	416,000	335,000	335,000		1,432,000
2. N. W. Electric Cooperative:						
A. Charges by cooperative:						
(1) Purchase of power, 282,000,000 kilowatt-hours (85 percent P. F.):						
$150,000 times 12 months	$1,800,000					
Fuel adjustment, 282,000,000 kilowatt-hours times $.00053	150,000					
(2) Service charges: 69-kilovolt facilities, 202,300,000 kilowatt-hours times $0.00235	475,000					
Total purchase of power and service charges		2,425,000		[1] 1,338,000		1,087,000
(3) Rental of transmission facilities:						
Payment 154-kilovolt transmission investment:						
$6,357,627×4×12 months / 1,000	$305,000					
Estimated overhead [2]	41,000					
Estimated operation, maintenance, and replacement [4]	124,000					
Total rental of transmission facilities			470,000			470,000
B. Sales to cooperative (55 percent L. F.):						
42,000 kilowatts and (202,300,000)						
202,300,000 kilowatt-hours times $0.00661				[1] 1,338,000		
Total, N. W. Electric Power Cooperative		2,425,000	470,000	1,338,000	1,338,000	1,557,000
3. Western Farmers Electric Cooperative:						
A. Charges by cooperative:						
(1) Purchase of power, 225,000,000 kilowatt-hours (18,750,000 times 12 months):						
$78,750 times 12 months	$945,000					
Fuel adjustment: 225,000,000 kilowatt-hours times $0.00033	74,000					
Total purchase of power	1,019,000					
(2) Service charges: 69-kilovolt facilities, $84,750 times 12 months	1,017,000					
Total purchase of power and service charges		2,036,000		[1] 469,000		1,567,000
B. Sales to cooperative (1,800 hours use):						
20,600 kilowatts and (37,000,000 kilowatt-hours) 37,000,000 kilowatt-hours times $0.01266				[1] 469,000		
Total, Western Farmers Electric Cooperative		2,036,000		469,000	469,000	1,567,000

See footnotes at end of table, p. 765.

Purchase of power, service charges, rental of transmission facilities, gross sales, receipts deposited, and expenditures from continuing fund, fiscal year 1961—Continued

	(1) Purchase of power and service charges	(2) Rental of transmission facilities	(3) Gross sales and gross revenue	(4) Amount of offset in settlement	(5) Net revenue and receipts deposited (col. 3—col. 4)	(6) Expenditures from continuing fund (col. 1+col. 2—col. 4)
4. Oklahoma utility companies:						
A. Charges by companies:						
(1) Purchase of power (50 percent L.F.):						
64,848 kilowatts times $1.60 times 12 months $1,245,000						
284,000,000 kilowatt-hours times $0.0035 994,000						
Total purchase of power	$2,239,000			[1] $1,925,000		$314,000
B. Sales to companies:						
(1) 64,848 kilowatts times 1.65 equals 107,000 kilowatts:						
107,000 kilowatts times $1.20 times 12 months $1,540,000						
192,600,000 kilowatt-hours times $0.002 385,000						
Total sales to companies			[1] $1,925,000			
Total, Oklahoma utility companies	2,239,000		1,925,000	1,925,000		314,000
5. Texas Power & Light Co.:						
A. Charges by company:						
(1) Purchase of power:						
25,000 kilowatts times $1.60 times 12 months $480,000						
109,500,000 kilowatt-hours (50 percent L.F.):						
45,000,000 kilowatt-hours times $0.002 90,000						
64,500,000 kilowatt-hours times $0.003 193,000						
Total purchase of power	763,000			[1] 644,000		119,000
B. Sales to company:						
35,000 kilowatts times $1.20 times 12 months $504,000						
70,000,000 kilowatt-hours times $0.002 140,000						
Total sales to company			[1] 644,000			
Total, Texas Power & Light Co	763,000		644,000	644,000		119,000
6. Others:						
A. Purchase of power: 3,013,500 kilowatt-hours times $0.00365	11,000					11,000
Total purchase from others	11,000					11,000
7. Southwestern Electric Power Co. (Narrows Dam):						
A. Charges by company:						

Total purchase from others		11,000					11,000

7. Southwestern Electric Power Co. (Narrows Dam):							
A. Charges by company:							
Purchase of power (50 percent L.F.):							
5,000 kilowatts times $0.60 times 12 months	$36,000						
22,300,000 kilowatt-hours times $0.004	89,000						
		125,000					
Service charge: 12,000,000 kilowatt-hours times $0.001		12,000					
		[1] 137,000					
Total charges							
B. Sales to company, 17,000 kilowatts and 18,000,000 kilowatt Contract amount $17,250 times 12 months				207,000	[1] 137,000	$70,000	
Total, Southwestern Electric Power Co. (Narrows)		137,000		207,000	137,000	70,000	
8. KAMO Electric Cooperative:							
A. Charges by cooperative:							
(1) Rental transmission facilities:							
69-kilovolt transmission investment:							
$\frac{\$7,449,986 \times 4 \times 12 \text{ months}}{1,000}$	$358,000						
Estimated overhead [1]	58,000						
Estimated operation, maintenance, and replacement [2]	163,000						
Total rental transmission facilities			$579,000				
B. Sales to cooperative (50 percent L.F.):							
35,500 kilowatts and (155,500,000 kilowatt-hours)				1,084,000	[3] 579,000	505,000	
155,500,000 kilowatt-hours times $0.00697							
Total, KAMO Electric Cooperative			579,900	1,084,000	579,000	505,000	
9. M. & A. Electric Power Cooperative:							
A. Charges by cooperative:	*Kilowatts*						
(1) Service charges:							
Poplar Bluff, Mo.	1,500						
Sikeston, Mo.	3,000						
M. & A. Cooperative	19,750						
Total	24,250						
24,250 kilowatts times $0.80 times 12 months		[1] 233,000					
B. Sales to cooperative:							
(1) Peaking (1,800 hours):							
9,000 kilowatts and 16,200,000 kilowatt-hours.							
16,200,000 kilowatt-hours times $0.0127	$205,000						
(2) Firm (4,700 hours):							
10,750 kilowatts and 50,500,000 kilowatt-hours.							
50,500,000 kilowatt-hours times $0.0067	339,000			544,000	[1] 233,000	311,000	
Total, M. & A. Electric Power Cooperative		233,000		544,000	233,000	311,000	

See footnotes at end of table, p. 765.

Purchase of power, service charges, rental of transmission facilities, gross sales, receipts deposited, and expenditures from continuing fund, fiscal year 1961—Continued

		(1) Purchase of power and service charges	(2) Rental of transmission facilities	(3) Gross sales and gross revenue	(4) Amount of offset in settlement	(5) Net revenue and receipts deposited (col. 3−col. 4)	(6) Expenditures from continuing fund (col. 1+col. 2−col. 4)
10. Sho-Me Power Corp.:							
A. Charges by corporation:							
1. Service charges: 60,000 kilowatts times $0.80 times 12 months		[1] $576,000					
B. Sales to corporation (2,800 hours):							
60,000 kilowatts and (168,000,000 kilowatt-hours)							
168,000,000 kilowatt-hours times $0.00921				$1,548,000	[1] $576,000	$972,000	
Total, Sho-Me Power Corp		576,000		1,548,000	576,000	972,000	
11. Southwestern Electric Power Co. (interconnected system):							
A. Charges by company: Purchase of power (50 percent L.F.):							
4,000 kilowatts times $1.65 times 12 months	$79,000						
17,520,000 kilowatt-hours times $0.003	53,000						
Total purchase of power		[1] 132,000					
B. Sales to company:							
8,000 kilowatts times $1.20 times 12 months	$115,000						
14,400,000 kilowatt-hours times $0.002	29,000						
Total sales to company				144,000	[1] 132,000	12,000	
Total, Southwestern Electric Power Co. (interconnected system)		132,000		144,000	132,000	12,000	
12. Sales to preference customers and others by the Government:							
Preference customers served direct	$1,192,000						
Preference customers served under Oklahoma companies contract	1,980,000						
Preference customers served under Southwestern Electric Power Co. contract (interconnected system)	122,000						
Preference customers served under Texas Power & Light Co. contract	763,000						
Arkansas Power & Light Co., aluminum contract (Reynolds Metals Co.)	2,059,000						
Brazos Electric Power Cooperative (Whitney)	441,000						
Preference customers served under Southwestern Electric Power Co. (Narrows)	155,000						
Additional peaking sales	360,000						
Total sales				7,072,000		7,072,000	
Total purchase of power and service charges		9,903,000					
Total rental of transmission facilities			$1,465,000				

Total gross operating revenue				15,310,000	6,368,000		
Amount of offset in settlement of accounts						8,942,000	
Net revenue and receipts deposited in the Treasury							$5,000,000
Expenditures from continuing fund, fiscal year 1961							

Total purchase of power and service charges	9,903,000					
Total rental of transmission facilities		$1,465,000				
Total gross operating revenue			15,310,000	6,368,000		
Amount of offset in settlement of accounts					8,942,000	
Net revenue and receipts deposited in the Treasury						$5,000,000
Expenditures from continuing fund, fiscal year 1961						

[1] Offset of amount due the Government against amount due the cooperative.
[2] Based on experience of previous years' operations.
[3] Operation and maintenance at $180 per mile for 182.4 miles of transmission lines: $0.40 per kilovolt-ampere of substation capacity (75,000 kilovolt-amperes). Replacements, 1 percent times investment less land costs ($4,897,771).
[4] Operation and maintenance at $180 per mile for 254 miles of transmission, $0.40 per kilovolt-ampere of substation capacity (55,000 kilovolt-amperes) replacement, 1 percent times investment less land costs ($5,707,838).
[5] Operation and maintenance at $128 per mile for 649.4 miles of transmission lines, $0.40 per kilovolt-ampere of substation capacity (44,000 kilovolt-amperes). Replacement, 1 percent times investment less land costs ($6,232,913).

Itemization of estimate

	Estimate 1960	Estimate 1961	Increase (+) or decrease (−)
Program and financing: Total obligations	$5,045,000	$5,000,000	−$45,000
Obligations by objects:			
01 Personal services	25,000		−25,000
02 Travel	8,000		−8,000
07 Other contractual services	5,000,000	5,000,000	
08 Supplies and materials	12,000		−12,000
Total obligations	5,045,000	5,000,000	−45,000

Mr. WRIGHT. That is merely the funds necessary to pay out the balancing of purchased power and the rental for use of transmission capacity and wheeling arrangements or transmission charges with power companies and others that do not balance out when we make these payments.

We had a $5 million allowance last year and the same allowance this year of which we expect to save $955,000, as I pointed out to the committee, due to a comparatively favorable water year.

Mr. CANNON. Do you think the power sites that we now have completed and in operation, those that we have under construction, and those on which we have provided planning funds cover practically every available site that the future will require on this grid?

Mr. WRIGHT. I think it probably covers, Mr. Chairman, practically every feasible site of any size. But, I think we have something else down there which I think the Government ought not to have to do, but which I think the Government can encourage others to do. That is one of the things I want to talk to you about, which will make as far as the people are concerned, an additional electric capacity available in far greater quantities than we have ever thought. I want to talk to you about that.

AREA PLANNING

Mr. CANNON. Now, taking up your second point——

Mr. WRIGHT. As I mentioned a moment ago, I am delighted to report to the chairman and this committee that the preference customer groups of the Southwestern Power Administration who have for years had an informal organization called the Southwest Power Advisory Committee, which meets with us every 3 months and puts their common problems on the table, have agreed that this group in the six States should form a planning and coordinating unit which will take the total problems of the area and study them and technically come up with the answer as to what should be in each area, and that each of these groups will cooperate with the other to the end that it is done. The reason this has now become necessary is very simple, and it is a physical reason. If we want to deliver power in Missouri right now from Greers Ferry Dam, all we have to do to deliver power in Missouri is to make some interconnections with the Arkansas-Missouri Power Co. and the Arkansas Power & Light Co. If you do not, none of your transmission systems which are interconnected will remain stable.

That is a study which was initiated by the Central Cooperative, participated in by all the other groups and participated in with the effected power companies of the area. We all are studying these problems together.

Furthermore, I have a letter just written to me by the Sho-Me Power Corp. which says that—

> we have done some studying of our own independent system for the last 15 or 20 years and we see, if we would try to do this thing alone, we are talking about a need of financing as much as $50 million worth of facilities, which would be impossible for any unit or group to even think about by themselves.

But if they do this whole thing together and plan their generation together, they can select the most economical type of generation at the most economical place and with the proper timing so that all of this system will develop and be stable together. They have now undertaken that responsibility, which I think this Government should be very happy to hear.

I understand the figure is about twice as much as I said, but I just cut their estimate in half. I was afraid to read the figure of $100 million.

Mr. CANNON. You would say, then, that that is a conservative forecast?

Mr. WRIGHT. It certainly is, sir. If you realize the magnitude of this thing, it is tremendous. When I first went to the Southwest in 1941 there were approximately 2 million kilowatts in the total generation capability of these six States. There is now in publicly developed generation, or predicted to be by 1965, 2 million kilowatts, and in the private part of it there is 10 times that much.

Mr. CANNON. That will include the introduction of new industries and expansion of present industries?

Mr. WRIGHT. As an example of what happened, Mr. Chairman, the Gulf States Utility Co., which has not raised its rates, had a total gross income in 1950 of $12 million. Their total gross income in 1958 was $72 million. That is six times more income, which has come about in 8 years. That is what the electric business is doing. It is perfectly astounding to even try to think of the financing to keep up with it. The good news about this is that these groups, out of physical pressure of interconnection, are going to have to coordinate their planning and come up with the very best possible arrangement.

Mr. CANNON. Well, we have had in my State, for example, in recent years very carefully organized attempts to destroy our REA systems and to take over our municipal plants.

Do you think that in the future, instead of campaigns of that character, all companies will be prepared to cooperate?

Mr. WRIGHT. I think it is coming to that, and I think that a large percentage of that has already occurred. But I think it will all come into being.

Mr. CANNON. You think they have accomplished the results and that there will be no future efforts made to take over any of our REA systems?

Mr. WRIGHT. I think they see that it is very good business. I think the evidence that I introduced to the committee this morning to the effect that, out of the 20 lowest rates in the United States for REA cooperatives, 17 of those companies are affiliated with us, and I think

that is the best evidence I could present that these companies are beginning to see that this is good business. As a matter of fact, we do not deal any more with anyone unless it is good business. We do not want them in with us unless it is good business for them as well as us.

PUMP-BACK GENERATION

I think the greatest thing I have left to talk about is just one point, and this initially I talked to the committee about just last year. Initially it was probably labeled a "pipedream," and that is pump-back project potential—pump-back generation potential around the Government reservoirs already constructed.

Mr. CANNON. I am glad you have taken that up, because I had overlooked my desire to get some discussion of that. Apparently, just recently, some of the private companies are following that plan rather successfully. Do you think it is practical, and do you think in the future we can adopt that in both private and public power?

Mr. WRIGHT. Mr. Chairman, I would like to tell you my beliefs about it. I would like to use as an example the Tenkiller Reservoir in existence on the Illinois River in Oklahoma. That reservoir with its powerplant has the capacity of 35,000 kilowatts. It is not a large project, but there are two sites within eyesight distance of the Tenkiller Dam in which you can place high-head dams in little canyons at very small expense which will create projects with a capability of 450,000 kilowatts, or better than 10 times the capacity we already have in the project at just two sites. There are probably 10 more around there. These sites will accomplish the purpose of storing thermal energy available from any thermal generation plant that is not operated at full capacity, 24 hours a day, around the clock.

Now, all of the power companies have thermal generating capacity, but as soon as their peakload goes off in the evening, they would be capable of pumping water from the Tenkiller Reservoir up into this little high-head reservoir and letting it run down the next day, thus getting a storage battery of energy. Economically, it takes 3 kilowatt-hours to pump it up and you only get 2 when you come back down. Those 3 kilowatt-hours cost you only a fuel cost, at the most, of 3½ mills. That is worth 10½ mills for your 3 hours to get it up there. Coming back down, those 2 hours are worth 18 mills a kilowatt-hour, and I am selling it for that. You will get 36 mills' value coming down for what you would have to expend on this.

It is my belief that these plants should be constructed by the people who have thermal energy to store—whoever that may be—and that the Government's part of this program should be limited to an assistance in design, the leasing of a site, and so forth. In other words, if the Government did not get a fee of but one-tenth of a mill a kilowatt-hour for the use of this site, the economics of every single one of these reservoirs in the Southwest would be tremendously changed. No one can predict how much, because we do not know how much potential there is.

One of the leading hydraulic engineers in Tulsa said the other day that they had surveyed 1,000 sites around reservoirs capable of producing 5 million kilowatts.

Mr. CANNON. Which are the sites and in what States are they located?

Mr. WRIGHT. In these six States at the reservoirs we now have, and, because people may think that I am tremendously enthusiastic about this, and because it sounds like a "Goldberg" arrangement, I would like to read to you an article from the magazine Electric Light and Power of January 15, 1960:

> Work will begin early this year on Union Electric's new Taum Sauk "pumped storage" plant, subject to approval of regulatory authorities, and the novel plant is expected to be ready for service in the spring of 1963. A contract for the construction and installation of equipment has been awarded to the Fruin-Colnon Contracting Co. of St. Louis and Utah Construction & Mining Co. of San Francisco as joint venturers.
>
> The construction portion of the job involved some $20 million of the $50 million project. The remaining $30 million is in the purchase of equipment, design, transmission system, lands, and rights-of-way, etc.

Mr. CANNON. That is already underway then?

Mr. WRIGHT. This company is doing it. They found a little stream over in eastern Missouri where they could build two little reservoirs, one down at the bottom and the other one on top of something called Granite Mountain. They put a small reservoir up at 1,000 feet.

The size of that plant proposed by Union Electric is 350,000 kilowatts, and it says the project is possible due to development in recent years of electric generators that, when operated in reverse, become pumping equipment. Combination pump turbines using night power available from the St. Louis area steamplants will move the water from the lower to the upper pool each night. The water will then flow to the lower pool during daylight hours, generating 350,000 kilowatts of electricity in the process; 350,000 kilowatts of peak electricity at the current price is worth 350,000 times $20 a year.

Mr. CANNON. Most of the peak would go otherwise unutilized?

Mr. WRIGHT. That is correct. This allows you to utilize it by burning only fuel. In addition to that, you have one other thing. With reference to these big powerplants that the companies are now putting in, one of the critical items is the temperature rating of the metal. They operate at 1900-pound steam pressure at very, very high temperatures. If you let your machines cool down enough to operate at 60 percent of their capacity, you have a tremendous metallurgical change in those metals, and that is serious. If you could find a way to let thermal machines operate at their rated capacity, we will have achieved another tremendous economy in thermal power operations. Any economy, you see, in the power industry of an area has to reflect where somebody is going to make some more money or they are going to be able to sell it cheaper. The people generally will profit in this interconnected system, and it is my belief that the people who will profit from this will be the people who use electricity.

Mr. CANNON. I think this a very alluring prospect, Mr. Wright. As you say, a year or two ago it seemed rather visionary, but today it is in practice?

Mr. WRIGHT. Yes, sir. Mr. Chairman, what needs to be done is this: I do not get to talk to anyone in Congress but you. You are my board of directors and the only ones I ever see. I never see an authorizing committee, but to enable this to be done——

Mr. CANNON. As you know, before this committee can appropriate a dollar the appropriation must be authorized by law.

Mr. WRIGHT. Yes, sir; I am aware of that.

Mr. CANNON. And, as you know, we must go back and start with the legislative committees. But, so far as you are aware, Mr. Wright, has anyone now in contemplation any plan of presenting such a proposal to the legislative committees?

Mr. WRIGHT. I know of none, and I know of no way that I can do it other than to tell you gentlemen, whom I feel will become interested in it and, perhaps, will make inquiry which will cause someone to do it. It is my view that the authorization of a study of this by the Corps of Engineers and the Department of the Interior or other interested agencies to the end that they would develop for Congress legislation which will encourage the power companies or anybody else with thermal power to go into this in coordination with the Government—in my view, the Government would have to do none of the financing of these projects.

Mr. CANNON. You would be subject to call in the event either the Department or a governmental agency or any legislative committee wanted to go into this a little further?

Mr. WRIGHT. I would consider it a privilege, sir.

Mr. CANNON. I think this committee would be inclined to suggest to the Department that they look into this and, later on, submit it to the legislative committee and, if approved by the legislative committee, it could be considered further.

We would be glad if you would have that in mind, Mr. Wright.

Mr. WRIGHT. Mr. Chairman, I will do anything I can to assist that program.

That completes my presentation. As always, I am most grateful to this committee for taking so much time to listen to me.

Mr. CANNON. We are very much obliged to you, Mr. Wright. I think I speak not only for the committees and the Congress but for the entire area of the Mississippi Valley in commending you for the splendid way in which you have handled this remarkable enterprise. It seems absurd to congratulate a man who has carried through so great a program with such integrity and with no suggestion whatever at any time of any discrepancy.

Mr. WRIGHT. Thank you.

Mr. RABAUT. And his devotion to his task.

Thank you, Mr. Wright.

Mr. WRIGHT. Thank you, Mr. Chairman.

MARCH 16, 1960.

TENNESSEE VALLEY AUTHORITY

WITNESSES

HERBERT D. VOGEL, CHAIRMAN OF THE BOARD
A. R. JONES, BROOKS HAYS, MEMBERS OF THE BOARD
AUBREY J. WAGNER, GENERAL MANAGER
LELAND G. ALLBAUGH, DIRECTOR OF AGRICULTURAL RELATIONS
L. EDWARD ELLIS, JR., BUDGET ANALYST
PAUL FAHEY, DIRECTOR OF MATERIALS
R. A. KAMPMEIER, ASSISTANT MANAGER OF POWER
RICHARD KILBOURNE, DIRECTOR OF FORESTRY RELATIONS
CHARLES J. McCARTHY, GENERAL COUNSEL
GEORGE P. PALO, CHIEF ENGINEER
LOUIS J. VAN MOL, ASSISTANT GENERAL MANAGER AND CHIEF BUDGET OFFICER
JOHN H. WALTHALL, DIRECTOR OF CHEMICAL DEVELOPMENT
G. O. WESSENAUER, MANAGER OF POWER
CHARLES H. YOUNG, MANAGER OF CHEMICAL ENGINEERING

TENNESSEE VALLEY AUTHORITY FUND

Program and financing

	Power proceeds and bonds			Appropriations and nonpower proceeds			Total		
	1959 actual	1960 estimate	1961 estimate	1959 actual	1960 estimate	1961 estimate	1959 actual	1960 estimate	1961 estimate
Program by activities:									
Operating costs:									
1. Navigation, flood control, and power program:									
(a) Navigation operations				$3,185,092	$3,399,000	$3,548,000	$3,185,092	$3,399,000	$3,548,000
(b) Flood control operations				2,910,927	3,024,000	3,039,000	2,910,927	3,024,000	3,039,000
(c) Power operations	$185,333,920	$191,319,000	$205,756,000				185,333,920	191,319,000	205,756,000
(d) Multipurpose reservoir operations not allocated above				298,807	281,000	283,000	298,807	281,000	283,000
(e) Topographic mapping				213,319	213,000	190,000	213,319	213,000	190,000
2. Fertilizer, agricultural, and munitions program:									
(a) Research on fertilizer products and processes				1,806,588	1,842,000	1,941,000	1,806,588	1,842,000	1,941,000
(b) Fertilizer production and distribution				17,505,350	20,261,000	19,843,000	17,505,350	20,261,000	19,843,000
(c) Fertilizer tests and demonstrations				1,939,185	1,971,000	2,363,000	1,939,185	1,971,000	2,363,000
(d) Agricultural development projects				81,685	97,000	107,000	81,685	97,000	107,000
3. Watershed protection and improvement program				1,038,194	1,122,000	1,254,000	1,038,194	1,122,000	1,254,000
4. General service activities:									
(a) Bridge maintenance (23 U.S.C. 320 (a-f))				4,849	8,000	8,000	4,849	8,000	8,000
(b) Reimbursable services:									
Mapping services				1,161,277	1,144,000	1,073,000	1,161,277	1,144,000	1,073,000
Other				1,795,563	2,378,000	3,174,000	1,795,563	2,378,000	3,174,000
Total operating costs	185,333,920	191,319,000	205,756,000	31,940,836	35,740,000	36,823,000	217,274,756	227,059,000	242,579,000
5. Unfunded adjustment to total operating costs:									
Depreciation included above (−)	−44,671,273	−48,285,000	−50,865,000	−3,795,727	−3,840,000	−3,985,000	−48,467,000	−52,125,000	−54,850,000
Property or services transferred in (−) without charge				−3,664			−3,664		
Total operating costs, funded	140,662,647	143,034,000	154,891,000	28,141,445	31,900,000	32,838,000	168,804,092	174,934,000	187,729,000
6. Relation of costs to obligations:									
(a) Costs financed from obligations of other years, net (−)	−8,980,555		−249,000	−1,614,006		−1,193,000	−10,594,561		−1,442,000

6. Relation of costs to obligations:									
(a) Costs financed from obligations of other years, net (—)	−8,980,555		−249,000	−1,614,006		−1,193,000	−10,594,561		−1,442,000
(b) Obligations incurred for costs of other years, net		209,000			3,050,000			3,259,000	
Total operating costs (obligations)	131,682,092	143,243,000	154,642,000	26,527,439	34,950,000	31,645,000	158,209,531	178,193,000	186,287,000
Capital outlay:									
1. Navigation, flood control, and power program:									
(a) Multipurpose dam			3,050,000	52,979	212,000	3,050,000	52,979	212,000	6,100,000
(b) Navigation facilities				8,590,804	3,449,000	5,880,000	8,590,804	3,449,000	5,880,000
(c) Flood control facilities				396,465	197,000	45,000	396,465	197,000	45,000
(d) Power supply facilities	69,664,654	94,785,000	141,770,000	2,957,639	2,224,000	1,667,000	72,622,293	97,009,000	143,437,000
(e) Transmission system facilities	22,340,079	30,770,000	31,770,000				22,340,079	30,770,000	31,770,000
(f) Additions and improvements at existing facilities	831,839	2,016,000	1,577,000	488,920	861,000	1,189,000	1,320,759	2,877,000	2,766,000
(g) Investigations for future facilities	271,784	183,000	229,000	−33,030	139,000	136,000	238,754	322,000	365,000
(h) Undistributed reductions based on possible delays and savings			−12,000,000						−12,000,000
2. Fertilizer, agricultural, and munitions program: Chemical facilities				1,010,761	846,000	1,907,000	1,010,761	846,000	1,907,000
4. General service activities: General facilities				947,294	1,848,809	197,000	947,294	1,848,809	197,000
Total capital outlay costs, funded	93,108,356	127,754,000	166,396,000	14,411,832	9,776,809	14,071,000	107,520,188	137,530,809	180,467,000
6. Relation of costs to obligations:									
(a) Costs financed from obligations of other years, net (—)				−1,605,911	−69,000		2,188,974	47,116,000	35,030,000
(b) Obligations incurred for costs of other years, net	3,794,885	47,185,000	34,675,000			355,000			
Total capital outlay (obligations)	96,903,241	174,939,000	201,071,000	12,805,921	9,707,809	14,426,000	109,709,162	184,646,809	215,497,000
Total program (obligations)	228,585,333	318,182,000	355,713,000	39,333,360	44,657,809	46,071,000	267,918,693	362,839,809	401,784,000

Program and financing—Continued

	Power proceeds and bonds			Appropriations and nonpower proceeds			Total		
	1959 actual	1960 estimate	1961 estimate	1959 actual	1960 estimate	1961 estimate	1959 actual	1960 estimate	1961 estimate
Financing:									
Amounts becoming available:									
Appropriations				$16,850,000	$14,903,850	$20,520,000	$16,850,000	$14,903,850	$20,520,000
Authorization to expend from corporate receipts		$750,000,000						750,000,000	
Revenue and receipts:									
Navigation operations				16,412	15,000	15,000	16,412	15,000	15,000
Power operations	$236,163,858	244,916,000	$266,343,000				236,163,858	244,916,000	266,343,000
Multipurpose reservoir operations				298,807	281,000	283,000	298,807	281,000	283,000
Fertilizer, agricultural, and munitions development				15,379,274	20,669,000	20,680,000	15,379,274	20,669,000	20,680,000
Watershed protection and improvement				72,981	82,000	86,000	72,981	82,000	86,000
Reimbursable services				2,956,840	3,522,000	4,247,000	2,956,840	3,522,000	4,247,000
Other receipts, net	359,927	892,000	362,000	1,951,472	763,000	722,000	2,311,399	1,655,000	1,084,000
Total amounts becoming available	236,523,785	995,808,000	266,705,000	37,525,786	40,235,850	46,553,000	274,049,571	1,036,043,850	313,258,000
Unobligated balance brought forward:									
Cash	−22,802,559	−14,864,107		12,991,176	9,268,999	4,847,040	−9,811,383	−5,595,108	4,847,040
Authorization to expend from corporate debt receipts			662,761,893						662,761,893
Total amounts available	213,721,226	980,943,893	929,466,893	50,516,962	49,504,849	51,400,040	264,238,188	1,030,448,742	980,866,933
Capital transfers (payments to Treasury):									
Dividend (−)			−39,000,000						−39,000,000
Repayment of Government investment (−)			−10,000,000	−1,914,603		−2,000,000	−1,914,603		−12,000,000
Unobligated balance carried forward:									
Cash	14,864,107			−9,268,999	−4,847,040	−3,329,040	5,595,108	−4,847,040	−3,329,040
Authorization to expend from corporate debt receipts		−662,761,893	−524,753,893					−662,761,893	−524,753,893
Financing applied to program	228,585,333	318,182,000	355,713,000	39,333,360	44,657,809	46,071,000	267,918,693	362,839,809	401,784,000

Object classification

	1959 actual	1960 estimate	1961 estimate
Total number of permanent positions	11,290	11,364	11,738
Full-time equivalent of all other positions	4,330	3,601	5,369
Average number of all employees	15,018	14,456	16,756
Number of employees at end of year	14,768	15,529	18,391
Average grade and salary, grades established by the Board of Directors	4.6 $6,470	4.7 $6,834	4.7 $6,848
Average salary of ungraded positions	$5,328	$5,564	$5,768
01 Personal services:			
Permanent positions	$63,866,747	$68,496,800	$73,138,200
Positions other than permanent	27,920,203	23,770,400	36,929,500
Other personal services	3,204,900	3,535,800	3,607,300
Excess of annual leave earned over leave taken	531,539		
Total personal services	95,523,389	95,803,000	113,675,000
02 Travel	1,227,681	1,408,000	1,497,000
03 Transportation of things	18,829,879	22,145,000	25,640,000
04 Communication services	798,496	863,000	907,000
05 Rents and utility services	1,985,612	2,070,000	1,560,000
06 Printing and reproduction	49,371	71,000	116,000
07 Other contractual services	6,928,408	7,015,000	6,306,000
Services performed by other agencies	3,551,491	6,220,000	6,481,000
08 Supplies and materials	77,152,707	98,624,809	104,783,000
09 Equipment	46,719,413	64,756,000	88,096,000
10 Lands and structures	1,085,720	1,084,000	1,402,000
11 Grants, subsidies, and contributions	10,724,015	11,405,000	12,045,000
13 Refunds, awards, and indemnities	50,366	27,000	27,000
14 Interest			3,000,000
15 Taxes and assessments	1,648,707	1,930,000	2,338,000
Total accrued expenditures	266,275,255	313,421,809	367,873,000
Increase in unpaid undelivered orders	1,643,438	49,418,000	33,911,000
Total obligations	267,918,693	362,839,809	401,784,000

Mr. CANNON. We take up this morning the budget for the Tennessee Valley Authority. We have with us Mr. Vogel, the Chairman of the Board. We will start here with the justifications and insert them into the record at this point.

(The matter referred to follows:)

PREFACE

The Tennessee Valley Authority is a corporation wholly owned by the Federal Government. It is an independent agency under a Board of Directors responsible to the President and the Congress. It was created by the Congress in 1933 for the unified conservation and development of the resources of the Tennessee Valley. TVA is charged with the responsibility for developing the Tennessee River for navigation, flood control, and the generation of electric power; for chemical research and the production of experimental fertilizers useful in agriculture and national defense; and for encouraging, in the national interest, the agricultural and industrial development of the Tennessee Valley region.

TVA activities are financed from three sources: (1) appropriations by the Congress; (2) proceeds available from current power operations and from borrowings against future power revenues; and (3) proceeds available from nonpower activities.

Summary of budget financed from appropriations

Beginning construction of Melton Hill Dam and Reservoir project near Oak Ridge, Tenn. (p. 9)	$4,000,000
Beginning construction of a new lock at Wheeler Dam, Ala. (p. 12)	4,000,000
Continuing construction of a new lock at Wilson Dam, Ala. (p. 13)	1,207,000
Continuing construction of Kingston Steamplant, Kingston, Tenn	1,207,000
Stopping leakage at Hales Bar Dam near Chattanooga, Tenn (p. 40)	1,000,000
Rehabilitation of phosphate plant at Muscle Shoals, Ala. (p. 58)	1,910,000
Additions and replacements of other facilities; administrative and general expenses	1,102,000
Program expenses: navigation and flood control operations, fertilizer research and demonstrations, watershed protection and improvement	8,505,000
Total budget financed from appropriations	22,931,000
Less balance available from previous appropriations	2,411,000
Proposed appropriation	20,520,000

Summary of budget financed from power proceeds

Power generating facilities nearing completion	$6,134,000
Beginning construction of Melton Hill Dam and Reservoir project near Oak Ridge, Tenn. (p. 9)	3,000,000
Continuing construction of:	
Colbert Steam Plant unit 5 (Alabama)	35,317,000
Paradise Steam Plant units 1–2 (Kentucky)	65,000,000
Additional steam unit, eastern area	14,000,000
Wilson hydro units 19–21 (Alabama)	8,564,000
Wheeler hydro units 9–11 (Alabama)	11,813,000
Transmission system facilities	31,000,000
Additions and replacements of other facilities, changes in inventories, and administrative and general expenses	3,293,000
Undistributed reductions based on possible delays and savings	−12,000,000
Power operating expenses	154,891,000
Total budget financed from power proceeds	321,012,000

Proceeds from power operations in 1961 are estimated at $266,343,000; proceeds from borrowings at $115 million; and other proceeds at $362,000. Payments to the Treasury are estimated at $49 million—$39 million as a dividend (return on the appropriation investment in the power program) and $10 million as a reduction in the appropriation investment in the power program.

Summary of budget financed from nonpower proceeds

Fertilizer operating expenses	$19,803,000
Reimbursable services	4,247,000
Other: Multipurpose reservoir operations expenses recovered and chemical inventories	235,000
Total budget financed from nonpower proceeds	24,285,000

Nonpower proceeds for the year are estimated at $26,033,000, of which $20,680,000 is from fertilizer operations. The budget estimates payment of $2 million of nonpower proceeds to the Treasury in 1961.

Summary of budget financed from appropriations (for fiscal years ending June 30, 1959, 1960, and 1961)

	1959 actual	1960 estimate	1961 estimate
ACQUISITION OF ASSETS			
Navigation, flood control, and power program:			
Multipurpose dam:			
Melton Hill Dam and Reservoir	$51,964	$200,000	$4,000,000
Navigation facilities:			
New lock at Wheeler Dam		200,000	4,000,000
New lock at Guntersville Dam			20,000
New lock at Wilson Dam	6,233,035	3,808,000	1,207,000
Other navigation facilities	52,623	50,000	
Flood control facilities	335,645	182,000	40,000
Power supply facilities:			
Kingston Steam Plant units 1–9	2,951,769	1,478,000	1,207,000
Shawnee Steam Plant units 1–10	351,456		
Gallatin Steam Plant units 1–2	−39,688		
John Sevier Steam Plant units 1–3	288,054		
Additions and improvements at existing facilities	575,562	701,000	1,161,000
Investigations for future facilities:			
Current	50,554	132,000	130,000
Reclassification of prior years' costs	−84,638		
Distribution of administrative and general expenses	317,307	191,000	257,000
Total navigation, flood control, and power program	11,083,643	6,942,000	12,022,000
Fertilizer, agricultural, and munitions program:			
Chemical facilities	998,154	1,055,000	2,157,000
Distribution of administrative and general expenses	34,309	35,000	50,000
Total fertilizer, agricultural, and munitions program	1,032,463	1,090,000	2,207,000
General service activities:			
General facilities	671,974	1,650,809	172,000
Distribution of administrative and general expenses	20,110	25,000	25,000
Total general service activities	692,084	1,675,809	197,000
Total acquisition of assets	12,808,190	9,707,809	14,426,000
EXPENSES			
Navigation, flood control, and power program:			
Navigation operations	241,388	294,000	300,000
Flood control operations	312,109	331,000	347,000
Multipurpose reservoir operations	2,510,199	2,685,000	2,682,000
Topographic mapping	200,744	200,000	177,000
Distribution of administrative and general expenses	227,587	240,000	240,000
Total navigation, flood control, and power program	3,492,027	3,750,000	3,746,000
Fertilizer, agricultural, and munitions program:			
Fertilizer, agricultural, and munitions development	3,038,620	3,086,000	3,386,000
Distribution of administrative and general expenses	111,472	120,000	120,000
Total fertilizer, agricultural, and munitions program	3,150,092	3,206,000	3,506,000
Watershed protection and improvement program:			
Watershed protection and improvement	966,402	1,043,000	1,175,000
Distribution of administrative and general expenses	63,970	70,000	70,000
Total watershed protection and improvement program	1,030,372	1,113,000	1,245,000
General service activities: Maintenance of bridges financed by others on TVA dams	4,849	8,000	8,000
Total expenses	7,677,340	8,077,000	8,505,000
INVENTORIES AND PROPERTY TRANSFERS			
General service activities:			
General inventories	−18,131		
Property transfers	−3,664		
Total inventories and property transfers	−21,795		
Total budget financed from appropriations	20,463,735	17,784,809	22,931,000
FINANCING			
Appropriation	16,850,000	14,903,850	20,520,000
Balance brought forward	8,905,694	5,291,959	2,411,000
Balance carried forward	−5,291,959	−2,411,000	
Total financing	20,463,735	17,784,809	22,931,000

Summary of budget financed from power proceeds (for fiscal years ending June 30, 1959, 1960, and 1961)

	1959 actual	1960 estimate	1961 estimate
ACQUISITION OF ASSETS			
Navigation, flood control, and power program:			
Multipurpose dam: Melton Hill Dam and Reservoir			$3,000,000
Power supply facilities:			
Kingston steamplant, units 1 to 9	$10,996	$9,000	9,000
Shawnee steamplant, units 1 to 10	3,528		
Gallatin steamplant, units 1 to 2	18,948		
Gallatin steamplant, units 3 to 4	20,658,591	2,577,000	193,000
John Sevier steamplant, units 1 to 3	12,110		
John Sevier steamplant, unit 4	35,356		
Johnsonville steamplant, units 7 to 10	21,843,482	2,522,000	42,000
Widows Creek steamplant, unit 7	24,032,402	47,960,000	5,890,000
Colbert steamplant, unit 5	600,976	10,012,000	35,317,000
Paradise steamplant, units 1 to 2		15,000,000	65,000,000
Additional steam unit, eastern area		1,000,000	14,000,000
Wilson hydro units 19 to 21	1,572,672	12,361,000	8,564,000
Wheeler hydro units 9 to 11		2,310,000	11,813,000
Transmission system facilities	21,676,971	30,000,000	31,000,000
Additions and improvements at existing facilities	818,740	1,970,000	1,536,000
Investigations for future facilities:			
Current	178,079	175,000	220,000
Reclassification of prior years' costs	84,638		
Undistributed reductions based on possible delays and savings			−12,000,000
Distribution of administrative and general expenses	1,560,867	1,858,000	1,812,000
Total acquisition of assets	93,108,356	127,754,000	166,396,000
EXPENSES			
Navigation, flood control, and power program:			
Power operations	136,829,823	139,009,000	150,868,000
Allocation of multipurpose reservoir operations	1,679,680	1,797,000	1,795,000
Distribution of administrative and general expenses	2,153,144	2,228,000	2,228,000
Total expenses	140,662,647	143,034,000	154,891,000
INVENTORIES			
Navigation, flood control, and power program: Power inventories	−9,003,040	359,000	−275,000
Total budget financed from power proceeds	224,767,963	271,147,000	321,012,000
FINANCING			
Balance brought forward	36,798,467	48,554,289	23,215,289
Proceeds from borrowings			115,000,000
Current proceeds:			
Power operations	236,163,858	244,916,000	266,343,000
Sale of retired plant and other miscellaneous receipts	359,927	892,000	362,000
Total current proceeds	236,523,785	245,808,000	266,705,000
Payments to Treasury:			
Reduction of appropriation investment			−10,000,000
Dividend (return on appropriation investment)			−39,000,000
Total payments to Treasury			−49,000,000
Balance carried forward	−48,554,289	−23,215,289	−34,908,289
Total financing	224,767,963	271,147,000	321,012,000

Summary of budget financed from nonpower proceeds (for fiscal years ending June 30, 1959, 1960, and 1961)

	1959 actual	1960 estimate	1961 estimate
ACQUISITION OF ASSETS			
Navigation, flood control, and power program: Navigation facilities	−$2,269		
EXPENSES			
Navigation, flood control, and power program: Multipurpose reservoir operations	298,807	$281,000	$283,000
Fertilizer, agricultural, and munitions program:			
Fertilizer, agricultural, and munitions development	16,860,848	19,645,000	19,428,000
Distribution of administrative and general expenses	351,274	375,000	375,000
Total fertilizer, agricultural, and munitions program	17,212,122	20,020,000	19,803,000
General service activities:			
Reimbursable services	2,900,748	3,482,000	4,207,000
Distribution of administrative and general expenses	56,092	40,000	40,000
Total, general service activities	2,956,840	3,522,000	4,247,000
Total expenses	20,467,769	23,823,000	24,333,000
INVENTORIES			
Fertilizer, agricultural, and munitions program: Chemical inventories	−1,027,854	598,000	−48,000
Total budget financed from nonpower proceeds	19,437,646	24,421,000	24,285,000
FINANCING			
Balance brought forward	3,914,603	3,238,140	4,149,140
Current proceeds:			
Navigation operations	16,412	15,000	15,000
Multipurpose reservoir operations	298,807	281,000	283,000
Fertilizer, agricultural, and munitions development	15,379,274	20,669,000	20,680,000
Watershed protection and improvement	72,981	82,000	86,000
Reimbursable services	2,956,840	3,522,000	4,247,000
Sale of retired plant and other miscellaneous receipts	1,951,472	763,000	722,000
Total current proceeds	20,675,786	25,332,000	26,033,000
Payments to Treasury: Payment of miscellaneous proceeds	−1,914,603		−2,000,000
Balance carried forward	−3,238,140	−4,149,140	−3,897,140
Total financing	19,437,646	24,421,000	24,285,000

Selected data for major projects

	Fiscal year construction started	Nameplate generating capacity and service dates		Budget				Administrative and general expenses, total project	Estimated incidental income, fiscal years 1960–61	Estimated total cost
		Capacity, kilowatts	Service dates	Actual to June 30, 1959 (net)	Estimated					
					Fiscal year 1960	Fiscal year 1961	To complete			
FINANCED JOINTLY FROM APPROPRIATED FUNDS AND POWER PROCEEDS										
Multipurpose dam: Melton Hill Dam and Reservoir:										
Appropriated funds				$293,694	$200,000	$4,000,000				
Power proceeds						3,000,000				
Total	1961	72,000	July, September 1963	293,694	200,000	7,000,000	$25,906,306	$600,000		$34,000,000
FINANCED FROM APPROPRIATED FUNDS										
Navigation locks:										
New lock at Wheeler Dam	1961		January 1963		200,000	4,000,000	11,515,000	285,000		16,000,000
New lock at Guntersville Dam	1962		October 1964			20,000	16,180,000	300,000		16,500,000
New lock at Wilson Dam	1957		November 1959	32,331,864	3,808,000	1,207,000		673,136	$20,000	38,000,000
Power supply facilities:										
Kingston steamplant, units 1–9	1951	1,440,000	February, April, June, July, 1954; January, March, May, August, December, 1955.	194,446,293	1,478,000	1,207,000		1,314,707		198,446,000
Shawnee steamplant, units 1–10	1951	1,350,000	April, June, October, 1953; January, October, November, December, 1954; March, July, 1955; October, 1956.	212,132,809				1,403,253		[1]213,536,062
Gallatin steamplant, units 1–2	1953	500,000	November 1956; June 1957.	75,262,071				789,221		[1] 76,051,292
John Sevier steamplant, units 1–3	1953	540,000	July, September 1955; February 1956.	83,429,071				674,022		[1] 84,103,093
Total for projects underway in 1961 or completed during fiscal year 1959				597,602,108	5,486,000	6,434,000	27,695,000	5,439,339	20,000	642,636,447
FINANCED FROM POWER PROCEEDS										

Total for projects underway in 1961 or completed during fiscal year 1959.				597,602,108	5,486,000	6,434,000	27,695,000	5,439,339	20,000	642,636,447

FINANCED FROM POWER PROCEEDS

Power supply facilities:										
Gallatin steamplant, units 3-4	1957	550,000	May, August 1959	60,020,012	2,577,000	193,000		641,467	75,000	63,356,479
John Sevier steamplant, unit 4	1956	180,000	October 1957	21,554,218				295,742		[1] 21,849,960
Johnsonville steamplant, units 7-10	1957	600,000	November 1958; January, June, August, 1959.	72,549,725	2,522,000	42,000		816,418	182,000	75,748,143
Widows Creek steamplant, unit 7	1958	500,000	October 1960	27,156,623	47,960,000	5,890,000	59,377	945,000	11,000	82,000,000
Colbert steamplant, unit 5	1960	500,000	October 1962	600,976	10,012,000	35,317,000	28,320,024	750,000		75,000,000
Paradise steamplant, units 1-2	1960	1,200,000	September 1962; summer 1963.		15,000,000	65,000,000	123,000,000	2,000,000		205,000,000
Additional steamunit, eastern area	1961	500,000	August 1963		1,000,000	14,000,000	78,050,000	950,000		94,000,000
Wilson hydro units 19-21	1959	162,000	June August, October, 1961.	1,635,177	12,361,000	8,564,000	1,159,823	280,000		24,000,000
Wheeler hydro units 9-11	1960	97,200	June, August, October, 1962.		2,310,000	11,813,000	6,827,000	250,000		21,200,000
Total for projects underway in 1961 or completed during fiscal year 1959.				183,516,731	93,742,000	140,819,000	237,416,224	6,928,627	268,000	662,154,582

[1] Actual.

Navigation, Flood Control, and Power Program

MULTIPURPOSE DAM

Melton Hill Dam and Reservoir

The 1961 budget includes $4 million from appropriated funds and $3 million from power proceeds for beginning construction of a multipurpose dam and reservoir on the Clinch River about 23 miles upstream from its confluence with the Tennessee River near Kingston, Tenn. The site is 9 miles southwest of Oak Ridge, 7 miles north of Lenoir City, and 19 miles west of Knoxville, Tenn. The dam will be a combination concrete gravity and earth embankment structure having a maximum height of about 82 feet, a crest length of 1,000 feet, including a gate-controlled spillway section of 150 feet, a navigation lock 175 feet in overall width, a powerhouse section of 210 feet, nonoverflow sections of about 187 feet, and an earth embankment about 278 feet long. Maximum pool will be at elevation 795 and the structure will create a reservoir 44 miles long with a volume of 118,600 acre-feet. The reservoir will extend up the Clinch River to a point about 8 miles above Clinton, Tenn.

The navigation lock, located at the right bank of the river, will have a chamber 75 feet wide by 400 feet long and will provide a normal maximum lift of 60 feet. It will extend navigation from the Watts Bar Reservoir upstream to Eagle Bend, a few miles above Clinton, Tenn. The lock and the navigation channel will provide for riverborne movements of pulpwood and a signficant amount of coal. Power generating equipment will have a total rated capacity of 72,000 kilowatts provided by two 36,000-kilowatt units, and will increase the dependable capacity of the system by 80,000 kilowatts.

Planning and design work is in progress for which the actual for 1959 was $51,964 and the estimate for 1960 is $200,000.

The total project, including switchyard, is estimated to cost $34 million. Considering direct navigation and power benefits only, the benefit-cost ratio for the project as a whole is 1.4 to 1. Although recreation benefits created by this project have not been evaluated above, they are extraordinarily significant.

The power facilities portion of the project will be financed from power proceeds and the remaining portion will be financed from apporpriated funds. The appropriation estimate of $4 million for fiscal year 1961 includes $3 million for expenditures and $1 million for contractual commitments estimated to be incurred during the year for goods and services not delivered. The power proceeds financed estimate of $3 million for fiscal year 1961 covers 50 percent of the expenditures estimated for the year for the whole project.

Navigation Program

One of TVA's primary objectives is the development of the Tennessee River for the benefit of navigation. Through a series of multipurpose dam and reservoir projects and related facilities a 9-foot navigable channel has been provided. The following sections describe 1961 plans for additions to navigation facilities and for performing engineering related to operating the navigation channel. A summary of the benefits of the navigation system is included.

NAVIGATION FACILITIES

The 1961 estimates of obligations for proposed navigation facilities are $5,227,000. Plans have been developed in cooperation with representatives of the Corps of Engineers.

Increasing traffic on the Tennessee River beyond the practical locking capacity of existing locks will require additional larger locks at Wheeler, Guntersville, and Hales Bar Dams within the next few years. The 1961 estimate includes $4 million for beginning construction of a new lock at Wheeler Dam; $20,000 for preliminary design work on a new lock at Guntersville Dam; and $1,207,000 for completing construction of the new lock at Wilson Dam.

Obligations for navigation facilities

	1959 actual	1960 estimate	1961 estimate
Appropriated funds:			
Navigation lock at Wheeler Dam		$200,000	$4,000,000
Navigation lock at Guntersville Dam			20,000
Navigation lock at Wilson Dam	$6,233,035	3,808,000	1,207,000
Navigation channel and other minor improvements	52,623	50,000	
Total, navigation facilities, appropriated funds	6,285,658	4,058,000	5,227,000
Nonpower proceeds: Alteration of bridges across navigation channels (planning and design studies)	−2,269		

Beginning construction of a new navigation lock, Wheeler Dam, Ala., $4 million

The 1961 estimate includes $4 million for beginning construction of a new lock at Wheeler Dam. The 1960 budget includes $200,000 for planning and design studies. When the new lock at Wilson Dam was placed in service in November 1959 the critical bottleneck to traffic movement on the Tennessee River was shifted upstream to the existing small lock at Wheeler Dam. In order to provide locking capacity commensurate with the needs of river traffic, a larger lock will be required at Wheeler Dam. The new lock will have a single lift with 110 by 600-foot chamber. After completion of the new lock, the existing 60 by 360-foot lock will be used as an auxiliary. The new lock is estimated to cost $16 million and has an estimated benefit-cost ratio of 10.9 to 1. It is scheduled to be placed in service in January 1963.

Preliminary design studies for a new navigation lock, Guntersville Dam, Ala., $20,000

The 1961 estimate includes $20,000 for preliminary design studies for a new lock at Guntersville Dam. Traffic in the section of the river above Wheeler Dam will exceed the locking capacity of the existing small lock at Guntersville Dam within the next 3 or 4 years. In order to provide locking capacity commensurate with the needs of river traffic, a larger lock will be required at Guntersville Dam. The new lock will have a single life with 110 by 600-foot chamber. After completion of the new lock, the existing 60 by 360-foot lock will be used as an auxiliary. The new lock is estimated to cost $16,500,000 and has an estimated benefit-cost ratio of 2.7 to 1. It is scheduled to be placed in service in October 1964.

Continuing construction of a new navigation lock, Wilson Dam, Ala., $1,207,000

The 1961 estimate includes $1,207,000 for completing construction of a new lock at Wilson Dam started in fiscal year 1957. The new lock has a single lift with 110 by 600-foot chamber and is served by a relocated approach channel from the head of Pickwick Reservoir to the lower lock entrance, bypassing lock and dam No. 1. The existing locks at Wilson Dam will be kept in operating condition for standby service. The project includes replacement of a hazardous swing span of the Southern Railway bridge which crosses the downstream entrance to the approach channel. A vertical lift span will provide adequate navigation channel width at this point. The total cost of the project is estimated at $38 million. The new lock was placed in service in November 1959 and alterations of the existing lock are to be completed by June 1960. Replacement of the navigation span of the Southern Railway bridge is to be started in fiscal year 1960 and completed in fiscal year 1961.

NAVIGATION OPERATIONS

Appropriated fund requirements for direct navigation expense in 1961 are $300,000 compared with $294,000 in 1960. Net expense figures for 1961 are $3,533,000 and for 1960, $3,384,000. Net expense is the direct expense of the program less income from river terminals plus depreciation on navigation facilities (which involves no cash outlay), administrative and general expenses, and a portion of multipurpose reservoir operations expense.

Breakdown of actual expense of navigation operations for 1959 and estimates for 1960 and 1961

	1959 actual	1960 estimate	1961 estimate
Income	$16,412	$15,000	$15,000
Expenses:			
Direct expenses:			
Navigation engineering and investigations	223,422	280,000	286,000
Operation of locks and terminals	17,966	14,000	14,000
Total direct expenses	241,388	294,000	300,000
Distribution of administrative and general expenses	15,452	16,000	16,000
Total	256,840	310,000	316,000
Allocated from multipurpose reservoir operations	1,342,093	1,434,000	1,432,000
Total expenses before depreciation	1,598,933	1,744,000	1,748,000
Depreciation on navigation facilities	795,239	865,000	1,010,000
Depreciation allocated from multipurpose reservoir operations	790,920	790,000	790,000
Total expenses	3,185,092	3,399,000	3,548,000
Net expense of navigation operations	3,163,680	3,384,000	3,533,000

Navigation engineering and investigations, $286,000

TVA has the primary Federal responsibility for navigation improvement of the Tennessee River and its tributaries. This includes the performance of engineering work to assure that physical facilities—locks, channels, safety harbors, and navigation aids—are operated, maintained, and modified or improved to meet the navigation needs of the waterway and to develop and make available basic technical data and services required by the public in using the waterway. Also included are transportation economic studies to investigate and appraise the opportunities for use of the waterway, the barriers inhibiting its use, and the benefits coming from the Federal investment in navigation facilities. The work is largely of a continuing nature, comprising in part day-to-day operating problems of the waterway and in part longer range investigations leading to recommendations for improved facilities. Navigation engineering and investigations also include the review and determination of the effects of proposed structures on navigation, as required by section 26a of the TVA Act, and revision of reservoir navigation charts and maintenance of 1,150 markers on more than 225 miles of secondary channels. Much of the field engineering work involves the use of a navigation service boat and barge.

TVA also provides bargelines, shippers, and others with technical data concerning the waterway. Reservoir charts and other maps will be revised and reprinted in 1961 as needed. During the past 2 years distribution of charts which are sold to the public, has increased from 12,000 to 20,000 copies a year. The navigation engineering and investigations work does not duplicate that of any other Federal agency.

Operation of locks and terminals, $14,000

This includes the cost of furnishing electric power to the Corps of Engineers for operating the navigation locks on the Tenessee River and the expense of administering leases for three public-use river terminals owned by TVA but leased to private operators. Income from these leases is estimated at $15,000 in 1961.

BENEFITS OF THE TENNESSEE NAVIGATION SYSTEM

The TVA Act of 1933 assigns to TVA the primary Federal responsibility for improvement of the Tennessee River and its tributaries for navigation. The operation of the navigation channel is a cooperative enterprise of TVA, the Corps of Engineers, and the U.S. Coast Guard. Barging facilities are operated by private enterprise. The improved Tennessee River is not an isolated communication artery of regional significance only. It is a part of a national investment in an inland waterway system connecting 20 States and their trade areas.

Traffic on the Tennessee River in calendar year 1958 was 12,041,000 tons and 2,103 million ton-miles. Transportation savings on this traffic are estimated at

$24 million, the difference in freight charges actually paid and those which would have obtained if the river had not been improved for navigation. About $23 million of these savings applied on freight originating outside the valley or moving from the valley to outside destinations. Total savings exceeded the combined navigation operations costs of the Corps of Engineers, Coast Guard, and TVA by about $20 million, which represents a return of about 14.5 percent on the net investment in navigation facilities on the Tennessee.

Flood Control Program

The activities and funds required in 1961 for the TVA flood control program are discussed below.

FLOOD CONTROL FACILITIES ($40,000)

The 1961 estimate includes $40,000 for completion of acquisition of additional land and land rights on Norris Reservoir at a total estimated cost of $1,320,000 to permit full utilization of the storage capacity of the project for downstream flood protection.

FLOOD CONTROL OPERATIONS

The 1961 estimate of direct expenses for flood control operations is $347,000. This estimate provides for (1) system flood control studies and investigations ($112,000), and (2) local flood studies and cooperation with other agencies ($235,000).

The major items of expense for flood control operations consist of a portion of the expense of operation of multipurpose reservoirs and depreciatin of major structures. Fund requirements for operation of multipurpose reservoirs are included in the multipurpose reservoir operations program (p. 44). Provision for depreciation is an accounting transaction requiring no current outlay of funds.

The total expense of flood control operations is estimated at $3,039,000 in 1961, compared to $3,024,000 in 1960 and actual expenses of $2,910,927 in 1959.

The estimated average benefits of the TVA flood control system are about $11 million a year. The net benefits, after deducting operating expenses of about $3 million a year, afford a rate of return of about 5 percent on the investment in flood control facilities. The net investment, after depreciation, in flood control facilities was $164,090,505 at June 30, 1959.

Breakdown of actual expense of flood control operations for 1959 and estimates for 1960 and 1961

	1959 actual	1960 estimate	1961 estimate
Direct expenses:			
System flood control studies and investigations	$109,515	$112,000	$112,000
Local flood studies and cooperation with other agencies	202,594	219,000	235,000
Total direct expenses	312,109	331,000	347,000
Distribution of administrative and general expenses	18,563	20,000	20,000
Total	330,672	351,000	367,000
Allocated from multipurpose reservoir operations	1,349,550	1,443,000	1,442,000
Total expenses before depreciation	1,680,222	1,794,000	1,809,000
Depreciation on flood control facilities	322,611	325,000	325,000
Depreciation allocated from multipurpose reservoir operations	908,094	905,000	905,000
Total expense of flood control operations	2,910,927	3,024,000	3,039,000

System flood control studies and investigations, $112,000

This activity includes collection and analysis of data and studies for operation of the existing flood control system and for potential projects. Estimates are based on streamflow occurrences expected to be experienced in an average year. When unusually high streamflows occur, special investigations, studies, and reports must be made of the conditions occurring, and the relation between water levels actually experienced and those which would have occurred without regulation must be established. This is necessary to evaluate the effectiveness of operations and to estimate damages averted. Information thus gained not

only is essential to aid in determining guides for reservoir operations in future similar circumstances but also is necessary to provide facts to answer damage claims which may be asserted. If such high streamflows occur in either 1960 or 1961, the direct flood-control expenses might exceed the estimates, but in such an event the additional funds required would be provided by adjustments within the total budget.

Operation of the flood-control system on the Tennessee River consists principally of (1) maintaining and using storage space in upstream reservoirs for seasonal retention of excessive runoff, and (2) regulating the discharges from reservoirs to rates of flow which can safely be handled by downstream channels and reservoirs. This system not only averts damage to cities and agricultural lands in the Tennessee Valley but also reduces flood crests on the lower Ohio and Mississippi Rivers. Regulation afforded by the Tennessee River system can reduce flood crests at Cairo, Ill., by from 2 to 4 feet and by lesser amounts on the Mississippi River as far south as the Red River. Substantial reductions of flood heights at Cairo have been accomplished several times, averting considerable damage to that city and to properties farther down the Mississippi River. The maximum reduction achieved so far at Cairo was 3.1 feet during May 1958. Another reduction of 1 foot was achieved at Cairo during July 1958. These two reductions averted damages along the lower Ohio and Mississippi Rivers of about $8 million.

Since the first project in the TVA system was placed in operation (1936), regulation of TVA reservoirs to reduce flood crests has averted damage of about $120,200,000 at the city of Chattanooga and about $20,150,000 on the lower Ohio and Mississippi Rivers. These amounts do not include damages averted at other localities within the valley and do not reflect the increased land values resulting from increased flood protection to 6 million acres along the Mississippi River.

Local flood studies and cooperation with other agencies, $235,000

This activity provides flood data and technical assistance to State and local governments to encourage their assumption of more responsibility for solution of local urban and rural flood problems. It represents application within the Tennessee Valley of an approach to solution of local flood problems recommended in a report on March 9, 1959, to Congress "A Program for Reducing the National Food Damage Potential."

At the request of State and local planning agencies TVA provides reports on the history of the occurrence of local floods of different magnitude, as well as information on the size of floods which may be expected. Much of the data forming the reports is already available in TVA records collected in the course of its operations. The data already available and that collected or developed for specific localities under this program are assembled in report form so as to be useful to planning agencies in deciding how damage from local floods can best be alleviated.

Forty-seven reports have been made covering 52 of about 100 communities in the valley having local flood problems. Preliminary reports have been made for four other communities. Ten additional reports are expected to be completed in fiscal year 1960. The 1961 estimate provides for completion of reports on 12 or more communities.

As evidence of the use being made of these reports, Pulaski, Tenn., on recommendation of the Tennessee State Planning Commission, in 1954 adopted a zoning ordinance which will go far toward reducing damages from local floods in that city. In 1956 Kingsport and Lewisburg, Tenn., adopted a comprehensive type of flood-plain zoning. Similar action was taken by Athens, Tenn., in 1957 and by Centerville, Tenn., in 1958. Clinton and Oak Ridge, Tenn., have adopted flood-plain controls in their subdivision regulations. Elizabethton and Waverly, Tenn.; Florence, Ala.; and Big Stone Gap, Va., have made studies preparatory to adopting such zoning. Cleveland, Tenn., has used the flood data in selecting the location for a new school building and in and in preparing a flood-plain zoning ordinance. At Lewisburg, Tenn., cooperative action by the city, Federal Housing Administration, and Veterans' Administration in utilizing flood data furnished by TVA in 1954 prevented the opening of two subdivisions in areas subject to flooding. Industries have made wide use of the flood report for Calvert City, Ky., in studies of proposed plant sites. Shelbyville and Morristown, Tenn., are utilizing the flood data in preparing their plans for urban redevelopment.

Communities in the valley are developing and expanding constantly. Some have already expanded unduly into flood plains. Most of them are not fully aware of their opportunities for reducing their local flood losses by guiding

future developments into safe areas through flood-plain regulations. Timely contacts and technical assistance can help greatly in reducing unnecessary development of flood areas and decreasing the demand on the Federal Government for flood protection structures as remedial measures.

During fiscal year 1959 TVA initiated, in cooperation with the State of Tennessee, a systemwide program for flood damage abatement. Through a contract with the Tennessee State Planning Commission, feasible methods of utilizing the police power in solving local flood problems and the extent to which the State and counties should control local development are being studied. After this basic research has been completed, the State agency will assist in organizing and promoting a flood damage abatement program within its boundaries. In fiscal year 1960 the contract with Tennessee is being extended for another year, and a similar contract with another valley State is being developed. The estimate for 1961 provides for continuation of these contractual relationships with two States.

Power Program

The TVA power program includes the provision of facilities for producing electric power and delivering it at wholesale to local distribution systems and to large Federal and industrial users. It also includes the operation of these facilities to help carry out the statutory objectives of providing consumers with ample low-cost power. The 1961 budget program for power supply facilities, transmission system facilities, and power operations is discussed in the following sections.

POWER SUPPLY FACILITIES

The rapidly growing use of electricity in the area served with TVA power requires a large investment in additional power facilities. The greater part of the funds required is needed for generating facilities. The program budgeted for 1961 includes use of power proceeds of $140,828,000 for the construction of generating facilities. During fiscal year 1961, $61,819,000 will be utilized to continue construction on eight steam-electric generating units and six hydroelectric generating units. Six of the steam units—Johnsonville units 7 to 10 and Gallatin units 3 and 4—are already in operation and only a small amount of work remains to be done. The other two steam units under construction are Widows Creek unit 7, scheduled for operation in October 1960; and Colbert unit 5, scheduled for operation in October 1962.

Three hydro units being constructed at Wilson Dam are scheduled for completion by the fall of 1961, and three hydro units at Wheeler Dam are expected to be completed by the fall of 1962. The new units at Wheeler Dam, to be started in 1960, are considered a companion installation to the three Wilson units, already under construction. The Wilson and Wheeler additions together will permit using more of the regulated streamflow to carry power demands during peakload hours. Water used through the Wheeler units would not have to be stored in the rather small Wilson Lake, but would be used during the same peakload periods to operate the Wilson units.

A summary of the amounts budgeted for fiscal year 1961 for these units and their rated capacity follows:

Plant and units	Power proceeds	Rated capacity
		Kilowatts
Johnsonville units 7 to 10	$42,000	600,000
Gallatin units 3 and 4	193,000	550,000
Widows Creek unit 7	5,890,000	500,000
Colbert unit 5	35,317,000	500,000
Wilson hydro units 19 to 21	8,564,000	162,000
Wheeler hydro units 9 to 11	11,813,000	97,200

With the installation of the generating units described above, the relationship between expected system capacity and presently predicted power requirements in the winter of 1960–61 through 1962–63 is shown in the following table:

Winter of—	Approximate system dependable capacity (kilowatts)	Presently estimated demands (kilowatts)	Capacity margin for operating requirements breakdown, maintenance, and for other unforeseen developments	
			Kilowatts	Percent load
1960–61	12,213,000	10,400,000	1,813,000	17.4
1961–62	12,375,000	11,200,000	1,175,000	10.5
1962–63	12,975,000	12,150,000	825,000	6.8

An adequate margin of capacity over the estimated loads is provided only through the winter of 1961–62. For subsequent years additional generating capacity is required and must be provided.

The enactment of the revenue bond bill by the Congress made it possible to schedule promptly additional generating capacity with which to meet future power requirements, and, since passage of the bill, two additional steam turbogenerators have been ordered—a 600,000-kilowatt unit for service in 1962 and an additional 500,000-kilowatt unit for service in 1963. With the addition of these units and the expected availability of hydro capacity at Melton Hill Dam by the fall of 1963, the comparison between estimated load and capacity will be as follows:

Winter of—	Approximate system dependable capacity (kilowatts)	Presently estimated demands (kilowatts)	Capacity margin for operating requirements breakdown, maintenance, and for other unforeseen developments	
			Kilowatts	Percent load
1962–63	13,575,000	12,150,000	1,425,000	11.7
1963–64	14,150,000	13,200,000	950,000	7.2

It is anticipated that the capacity margin shown for the winter of 1963–64 would be inadequate to provide for the various operating needs, for maintenance and breakdowns, and for other unforeseen developments. Therefore it is expected that additional capacity will be scheduled for the winter of 1963–64. When the orders were placed for the two new steam turbogenerators for 1962 and 1963, options were obtained on additional units of the same sizes; and the 1961 budget estimates are based upon the assumption that the additional capacity needed for 1963 would be another unit of 600,000 kilowatts. The margin would then be raised to about 11.7 percent.

Upon the completion of engineering and economic studies it was determined that the new unit scheduled for service in 1962 should go into a new plant in the western part of the system. The site is in the west Kentucky coal fields on the Green River near the village of Paradise, Ky.

The 500,000-kilowatt turbogenerator that has been purchased for service in 1963 should go into the eastern part of the system. The specific location has not been determined and if studies now in progress do not result in a satisfactory new plant location, the unit can be put into an existing station.

The second unit to be scheduled for service in 1963 is expected to be added to the new Paradise plant.

The 1961 estimates include $65 million for the new Paradise steamplant, including the 600,000-kilowatt unit already ordered and one of the optioned units; and $14 million for the 500,000-kilowatt unit which has been ordered for probable installation in the eastern part of the system.

BASIS FOR ESTIMATES OF LOAD AND CAPACITY

Estimates of power requirements

The estimates of power requirements assume a continued expansion of the economy of the Nation and the region with a relatively high level of industrial production.

Large and constantly growing amounts of power are used by the residential customers of the municipal and cooperative electric systems which distribute TVA power. Forecasts of their power requirements are based on a number of independent studies of factors which affect power use. These include studies of growth in number of customers and past and future uses of appliances and their effect on consumption levels. Trends of load growth and seasonal variations are projected from past experience. Existing and prospective requirements of commercial and industrial establishments served by the municipalities and cooperatives are likewise reviewed and projected.

A second group of loads is the few large industrial loads served directly by TVA. Their requirements are forecast on the basis of information received directly from the consumers. An allowance is included for continued expansion in this class of service.

The third group consists of the loads of the atomic energy plants and other Federal agencies operating in the area. Present temporary arrangements under which 200,000 kilowatts of the AEC load is converted to seasonal power will be broadened. It is currently assumed that by 1961–62 AEC's winter loads will be reduced by 300,000 kilowatts. Except for these amounts, the loads for Federal agencies included in the TVA peaks are the amounts under long-term contract, with only modest allowance for expansion or for additional power such as AEC has used under short-term arrangements; consequently, the estimates of power requirements of AEC are substantially below the levels established in prior fiscal years.

Estimates of dependable capacity

Hydro and steam generating units are designed and manufactured to deliver their nameplate capacity under specified average operating conditions. Under favorable conditions the output can be increased above this design capacity. For the steamplants the full maximum capability is included in the so-called dependable capacity of the system. The dependable capacity of the hydroplants is determined by taking into account the full capability of the units as limited by the effects of unfavorable water conditions. For example, hydrocapacity is reduced by the drawdown of the tributary reservoirs. Substantial winter drawdown is required for flood control, so considerable reduction of capacity from this cause is always present during the high-load season. During and following conditions of extreme drought, this drawdown and the accompanying capacity reduction are even more severe. Reservoir drawdown from summertime maximum to wintertime minimum can result in a capacity reduction of 500,000 kilowatts or more. In addition to limitations in capacity caused by reservoir drawdown, high tailwater resulting from floods may reduce available hydrocapacity by similar amounts. The figure assumed by TVA to be the dependable capacity of the hydroplants at the time of the system peak demand does not reflect a compounding of these effects. In arriving at a reasonable value of "dependable capacity," TVA assumes drawdown of the reservoirs to levels such that about 10 percent of the storage capacity above normal minimum levels is filled, with no concurrent high-water head loss at the main river dams. While dependable capacity implies at least relatively adverse conditions, these assumptions are considerably less severe than the conditions that occasionally may be experienced; more critical conditions are considered as emergencies to be met with the reserve capacity.

Necessity for margins

The maximum load-carrying ability of an integrated power system can never be determined with complete precision. The dependable capacity of the system must provide a reasonable margin to allow for unavailability of capacity because of breakdown of generating equipment and needs for maintenance and failure of the substation equipment and transmission lines which transfer the power from generating stations to the point of use. In the TVA system, because of the large number of hydroelectric generating units, an additional factor must be given consideration. This is the loss of hydrocapacity, in excess of that

accounted for in arriving at the dependable capacity of the hydrosystem, caused by further drawing down of the reservoirs during extremely dry periods.

In addition to these major factors, there are other operating characteristics which make it necessary to provide a margin of capacity in excess of the estimated normal peak demand on the system. These are attributable to the fact that the demand quantities used to indicate the maximum load on the system represent the average of instantaneous loads over an hour's time, and that for some minutes within the hour, the loads substantially exceed the average. That is, the actual maximum load which the generating stations must carry for short periods is higher than the nominal maximum load on the system. Also, as a result of interconnected operation with the adjoining utility systems, there are unavoidable momentary variations up and down in the power flows over the tie-lines so that a margin of generating capacity must be free to compensate for this.

In estimating the load-carrying ability of the system, the minimum reserve which must be maintained represent the best judgment of the minimum total of the allowances which should be provided to afford reasonable assurance of continuity of service for a load equaling the system load-carrying capacity. The maximum load which should be carried from an economic standpoint is somewhat less because the system load-carrying capacity is based upon all the generating capacity, including the oldest and highest cost steam capacity on the system; these older units should be used only on infrequent occasions in the event of abnormal compounding of the many factors which adversely affect the balance between load and supply.

In appraising the need for system capacity additions, it is necessary to consider not only the requirements for operating reserves but also that it is impossible to predict with complete assurance what the power demands on a system will be by the time new capacity can be put into operation. If the dependable system capacity is just equal to the expected demand plus the allowance for minimum operating reserves, any small unanticipated load growth will probably result in undesirable degradation of service—substantially larger loads cannot be supplied. If load estimates are prepared on as realistic a basis as possible, the planned system load-carrying capacity should afford some margin for error in estimating loads, with the margins increasing as the estimates are projected further into the future.

The margins shown in the tables of this report are based on system dependable capacity and may be compared with the 15–20 percent margin generally considered desirable by the utility industry.

Load and capacity forecasts provide the basis for judgment as to the desirable pace of new construction; past experience, combined with an analysis of current trends and conditions, must furnish the basis for the forecasts.

TRANSMISSION SYSTEM FACILITIES

Transmission line and substation construction during fiscal year 1961 will provide facilities needed for supplying general load growth throughout the service area. Under construction will be transmission line connections for delivering into the power network the output from the added generating units now being installed. The following table shows the expenditures for transmission system facilities in fiscal year 1959 and estimated expenditures for fiscal years 1960 and 1961.

Actual and budgeted expenditures for transmission system facilities

	1959 actual	1960 estimate	1961 estimate
Power proceeds:			
Direct:			
Primary transmission system facilities	$10,474,362	$16,450,000	$17,300,000
Subtransmission system facilities	7,123,811	7,150,000	7,300,000
Other additions and replacement of electric facilities	1,785,982	4,000,000	4,000,000
Total direct	19,384,155	27,600,000	28,600,000
Engineering, design, and general expense	2,292,816	2,400,000	2,400,000
Total	21,676,971	30,000,000	31,000,000

Primary transmission system facilities are those which operate at 161,000 volts. They are required for transmitting large quantities of power from generating plants to (1) the 69-kilovolt and 46-kilovolt subtransmission network which in turn supplies principally the loads of the municipalities and cooperatives; and (2) those directly served customers, including Federal agencies, which purchase substantial amounts of power. The primary transmission system is also used for power transfers to and from neighboring utilities in connection with interchange and other power transactions. The estimate for fiscal year 1961 includes $13,180,000 for continuation of work started in fiscal year 1960 and earlier years, and $4,120,000 for beginning construction of new facilities. The latter includes initiation of construction of four new primary substations and capacity increases at two generating plant switchyards where load growth necessitates additional capacity to supply the subtransmission system.

Primary transmission construction started before fiscal year 1961 and which will continue in that year includes work on seven primary substations, five of which will be completed; and work on transmission line connections for delivering into the system the generation from Colbert steamplant unit 5 and from the new Paradise steamplant. Transmission line connections for Johnsonville steamplant units 9 and 10 and for Widows Creek unit 7 will be completed during the fiscal year.

Expenditures in 1961 to increase the capacity of the subtransmission system facilities are to include $4,112,000 for continuation or completion of work started in fiscal year 1960 and earlier years and $3,188,000 for new line and substation additions where loads are outgrowing existing facilities. Of the latter amount, $2,563,000 is for 69-kilovolt and 46-kilovolt lines and substations to provide new service points where distributors are now serving customers over inadequate 13-kilovolt service lines; $575,000 is for capacity increases at existing 69-kilovolt and 46-kilovolt substations; and $50,000 is for rehabilitation and rebuilding of subtransmission lines.

Expenditures of $4 million are budgeted for other additions and replacements of electric facilities in 1961. Of this, $800,000 covers replacement of lines and substation facilities; $900,000 provides for installing static capacitors to increase the load-carrying capacity of subtransmission lines and installation of low voltage switches for new service points; $500,000 is for additions and improvements to the communication system; and $1,800,000 is for area headquarters and warehouse facilities, and for shop and laboratory tools and testing equipment.

UNDISTRIBUTED REDUCTION BASED ON POSSIBLE DELAYS AND SAVINGS

The 1961 total estimate for acquisition of assets financed from power proceeds includes —$12 million as an allowance for overall reductions in the estimate resulting from possible delays and savings, without assignment to the various elements comprising the total program.

SCHEDULE B–1.—*Power operations (for fiscal years ending June 30, 1959, 1960, and 1961)*

	1959 actual	1960 estimate	1961 estimate
INCOME			
Operating revenues:			
Sales of electric energy:			
Municipalities and cooperatives	$76,611,799	$85,720,000	$95,110,000
Commercial and industrial	40,885,653	45,920,000	55,720,000
Federal agencies	108,159,455	109,740,000	111,770,000
Electric utilities	8,497,172	260,000	290,000
Total outside sales	234,154,079	241,640,000	262,890,000
Rents and other revenues	1,298,713	1,450,000	1,627,000
Total operating revenues, exclusive of interdivisional sales and rents	235,452,792	243,090,000	264,517,000
Incidental income from recovery of operating expenses:			
Interchange power delivered	698,169	823,000	823,000
Other	12,897	3,000	3,000
Total incidental income (note 1(*a*))	711,066	826,000	826,000
Interest		1,000,000	1,000,000
Total income	236,163,858	244,916,000	266,343,000
EXPENSES			
Production:			
Generation	114,497,352	116,324,000	127,357,000
Purchased power	12,866		
Interchange power received	575,260		
Total production expense	115,085,478	116,324,000	127,357,000
Transmission	8,856,956	9,129,000	9,296,000
Customers' accounting and collecting	223,539	225,000	229,000
Research and demonstration in power utilization	586,101	657,000	664,000
Payments in lieu of taxes	5,900,391	6,341,000	6,637,000
Social security taxes	611,762	735,000	810,000
General operating expense	7,501,463	7,882,000	8,184,000
Other expense	151,520	66,000	71,000
Total operating expense	138,917,210	141,359,000	153,248,000
Less interdivisional sales and rents (note 1(*b*))	2,087,387	2,350,000	2,380,000
Total direct expenses	136,829,823	139,009,000	150,868,000
Distribution of administrative and general expenses (schedule B–4)	2,032,181	2,100,000	2,100,000
Total	138,862,004	141,109,000	152,968,000
Allocated from multipurpose reservoir operations	1,800,643	1,925,000	1,923,000
Total expenses before depreciation	140,662,647	143,034,000	154,891,000
Depreciation on power facilities	43,440,953	47,055,000	49,630,000
Depreciation allocated from multipurpose reservoir operations	1,230,320	1,230,000	1,235,000
Total expenses before interest	185,333,920	191,319,000	205,756,000
Net income before interest	50,829,938	53,597,000	60,587,000
Interest:			
Interest on borrowings			3,000,000
Less interest capitalized during construction			3,000,000
Net interest expense			
Net income from power operations	50,829,938	53,597,000	60,587,000

NOTE.—In accordance with the uniform system of accounts prescribed by the Federal Power Commission, TVA's published financial statements reflect these items as follows:
(*a*) Incidental income is deducted from the appropriate operating expense.
(*b*) Interdivisional sales and rents are included in operating revenues.
These departures are made herein for clarity of presentation for budgetary purposes.

POWER OPERATIONS (SCHEDULE B–1)

The total energy to be supplied to the power system from the generating facilities of TVA, the Department of the Army on the Cumberland River, and the Aluminum Co. of America on the Little Tennessee River is estimated to be 68.7 billion kilowatt-hours in fiscal year 1961; about 6.1 billion kilowatt-hours greater than the energy supplied to the system in fiscal year 1959, and about 5.1 billion kilowatt-hours above the estimated supply in fiscal year 1960.

The disposition of the energy is expected to be as follows:

	Billion kilowatt-hours
Sales, including interdivisional	64.39
Interchange deliveries to other systems	.21
Deliveries to Aluminum Co. of America under the Fontana agreement	2.05
Transmission losses and station use	2.07
Total	68.72

The net income from power operations, after depreciation, for fiscal year 1961 is estimated to be $60.6 million. The net income before interest is estimated at $59.6 million, representing a return on the average investment in the power program during the fiscal year of about 3.6 percent. The estimates assume average streamflow conditions. Better than average streamflows could produce an increase in net income over the estimates; with subnormal streamflows, net income would be reduced significantly by increases in production expenses.

Power revenues

Sales of electric energy, exclusive of interdivisionl deliveries, are expected to increase in fiscal year 1961 to about 63.8 billion kilowatt-hours, compared with the estimate of 59 billion kilowatt-hours in fiscal year 1960 and the actual of 56.6 billion kilowatt-hours in fiscal year 1959.

The forecast of energy requirements for fiscal year 1961 reflects a continuing substantial increase in the use of power in the homes, on the farms, and in the business and industrial establishments in the region, and a relatively small increase in power used by Federal agencies. The forecasts have been more fully described in the preceding section "Basis for Estimates of Load and Capacity."

Revenues from the sale of power, exclusive of interdivisional sales, are estimated at $262,890,000 in fiscal year 1961 and $241,640,000 in 1960; these estimates compare with the actual of $234,154,079 in 1959. Other power income is estimated at $3,453,000 in fiscal year 1961 and $3,276,000 in 1960, compared with the actual of $2,009,779 in 1959.

Power expenses

Assuming average streamflow conditions, the total direct power operating expenses are estimated to be $150,868,000 in fiscal year 1961 and $139,009,000 in 1960, compared with the actual of $136,829,823 in 1959. Most of the increase is in power production expense, reflecting the fact that more energy is to be obtained from the steamplants in supplying the increased requirements.

Variations in total production expense from year to year are detailed in the following tabulation of production expense:

	Actual, 1959		Estimated, 1960		Estimated, 1961	
	Billion kilowatt-hours	Thousand dollars	Billion kilowatt-hours	Thousand dollars	Billion kilowatt-hours	Thousand dollars
Generation:						
Hydroelectric	15.00	8,279	17.24	10,905	17.37	11,289
Steam-electric	45.97	103,717	46.35	103,010	51.35	113,571
Other generating expenses		2,501		2,409		2,497
Total generation expense	60.97	114,497	63.59	116,324	68.72	127,357
Purchased power		13				
Interchange received	1.61	575				
Total production expense	62.58	115,085	63.59	116,324	68.72	127,357

The estimates of production expense shown above reflect the streamflow and storage of energy into the early part of fiscal year 1960. As noted previously, departures from normal streamflows can change the production expenses by affecting steam-electric production and interchange transactions. Variations can also result from changes in the costs of fuel and its transportation; with an estimated consumption of over 20,500,000 tons of coal in fiscal year 1961, these costs

represent over 80 percent of the direct generation expense in that year and approximately the same percentage in the other years.

Referring to other expenses shown in schedule B–1, the increase from year to year in transmission expense and other costs reflects the requirements for operating and maintaining the growing power system needed to supply the expanding loads in the power service area.

The estimates for research and demonstration in power utilization provide for the studies, experiments, and demonstrations which help to accomplish the better and more economical use of electric power for agricultural and domestic use and for small industries. These activities are carried out in cooperation with such agencies as the agricultural extension services, the vocational education departments, State universities, State and county health departments, and the distributors of TVA power. Technical advisory services are provided for the distributors of TVA power, on a reimbursable basis, because most of the distributors are not large enough to maintain their own staffs and the cooperative approach provides these services economically.

The estimates of payments in lieu of taxes are based on revenues from the sale of energy, exclusive of deliveries to Federal agencies, in accordance with provisions of section 13 of the TVA Act. The payments represent 5 percent of such revenues for the preceding year.

POWER INVENTORIES

Power inventories are estimated to decrease during fiscal year 1961 by $275,000. A reduction in coal stockpiles of $425,000 is forecast, while the stock of materials and supplies required in the operation and maintenance of power facilities is estimated to increase by $150,000.

ADDITIONS AND IMPROVEMENTS AT EXISTING FACILITIES

Obligations for additions and improvements at existing facilities

	1959 actual	1960 estimate	1961 estimate
Appropriated funds (multiple-use facilities):			
1. Construction cleanup work	$51,479	$58,000	$36,000
2. Abatement of leakage at Hales Bar Dam			1,000,000
3. Site improvements and public-use facilities	302,071	331,000	63,000
4. Access roads to cabin sites scheduled for sale	43,647	51,000	25,000
5. Miscellaneous plant and equipment	178,365	261,000	36,000
Total appropriated funds	575,562	701,000	1,161,000
Power proceeds (power facilities):			
6. Construction cleanup work	318,754	748,000	133,000
7. Additions and improvements at power generating stations	499,986	1,222,000	1,403,000
Total, power proceeds	818,740	1,970,000	1,536,000

1. Construction cleanup work, $36,000

The 1961 estimate of $36,000 for construction cleanup work includes $13,000 for final land surveys, technical and legal services in connection with uncompleted land acquisition cases, and allowances for court awards for land acquisition cases in process of condemnation; and $23,000 for permanent land marking and record plats.

2. Abatement of leakage at Hales Bar Dam, $1 million

Hales Bar Dam, about 33 miles downstream from Chattanooga, Tenn., was acquired in 1939 from the Tennessee Electric Power Co. The foundation of the dam has always been subject to leakage of water. During fiscal years 1943 and 1944 TVA performed a considerable amount of foundation treatment work which reduced the leakage quite substantially. Since that time additional leakage has developed, which appears to be progressively increasing, and now is estimated at 1,700 cubic feet per second. To protect the stability of the structure and to avoid waste of waterpower, measures must be taken to reduce the leakage. The 1961 estimate includes $1 million for beginning leakage abatement work for which the total cost will be about $3,300,000.

3. Site improvements and public-use facilities, $63,000

TVA projects are open to the public and are points of interest for a great number of visitors. For example, during fiscal year 1959 there were over 10,300,000 visitors to TVA multipurpose dams. There were more than 1,484,000 visitors at Kentucky Dam; 1,316,000 at Fontana; 1,088,000 at Norris; 1,167,000 at Chickamauga; 1,128,000 at Pickwick; and numbers ranging from 48,000 to 689,000 at other projects. Such large assemblies of people require parking space, proper sanitation facilities, and other service installations. TVA provides only minimum facilities necessary to meet reasonable standards of public safety and convenience, and to provide for storage and repair of equipment necessary to maintain reservation property.

The 1961 estimate of $63,000 includes $26,000 for constructing public toilet facilities at a point of intensive visitor concentration downstream from Douglas Dam; $21,000 for rebuilding public toilet facilities at Norris boat harbor; $8,000 for design work on future site improvements at Pickwick Dam; and $8,000 for several miscellaneous minor items of site improvements.

4. Access roads to cabin sites scheduled for sale, $26,000

The 1961 estimate includes $26,000 for constructing about 2.4 miles of low-cost access roads to cabin site areas on two reservoirs. Construction of these roads will permit sale of surplus properties in isolated areas at prices sufficiently enhanced to exceed the cost of building the roads.

5. Miscellaneous plant and equipment, $36,000

The 1961 estimate of $36,000 covers a number of miscellaneous minor additions and retirements at completed facilities, including $12,000 for additions to the VHF radio system for transmission of hydrologic data; $6,000 for design studies for relocation of the roadway at the south end of Wilson Dam; and $18,000 for miscellaneous small items such as boats, motors, and other portable malaria control equipment; laboratory equipment for malaria control and water quality studies; and mowers, rakes, and small tools for maintenance of dam reservations.

6. Construction cleanup work, $133,000 (power proceeds)

The 1961 estimate of $133,000 for construction cleanup work financed from power proceeds covers cleanup of design work, minor construction costs, cleanup of land acquisition activities for power facilities, and purchase of reservation maintenance tools and minor items of equipment for use at power generating stations.

7. Additions and improvements at power generating stations, $1,403,000 (power proceeds)

This estimate provides for miscellaneous additions and improvements at power generating stations in operation. It covers completion of installation of equipment for remote operation of turbines from the control rooms at Wilson and Fort Loudoun hydro plants and starting installation of similar equipment at Wheeler and Watts Bar hydro plants; completion of automatic load control devices on units 9–18 at Wilson hydro plant; replacement of heavy mobile coal-handling equipment at various major steam plants; replacement of other items of plant equipment worn out in service or rendered inoperative because of damage; and a large number of minor additions and improvements to generating stations.

INVESTIGATIONS FOR FUTURE FACILITIES

The 1961 estimate of appropriated fund requirements is $130,000. Appropriated funds are used to finance investigations of dam and reservoir facilities, major navigation improvements, and flood control facilities. Investigations are underway and in various stages of completion on several potential damsites on tributaries of the Tennessee River. If these investigations show promise of economic feasibility, planning reports will be prepared. These reports provide the basis for recommendation for construction at such time as system development makes such action desirable.

The 1961 estimate of expenditures from power proceeds is $220,000. Power proceeds are used to finance investigations of additional generating units at existing projects and new steam plants. Investigations are in progress and will need to be continued on facilities necessary to meet future power loads.

The planning and scheduling of additional navigation, flood control, power, and multipurpose facilities require extensive preliminary engineering work.

Potential sites are investigated in order to make selections among alternative sites for needed future installations. Drilling and other field explorations are necessary to determine foundation conditions and to compare the relative engineering feasibility of different locations. Preliminary design studies of sufficient scope are made to compare probable operating characteristics and costs.

SCHEDULE B–2.—*Multipurpose reservoir operations (for fiscal years ending June 30, 1959, 1960, and 1961)*

	1959 actual	1960 estimate	1961 estimate
Income	$298,807	$281,000	$283,000
Expenses:			
Water dispatching operations	716,593	725,000	725,000
Water control investigations	357,040	360,000	360,000
Malaria control	459,486	464,000	454,000
Plant protection and services to visitors	1,131,384	1,215,000	1,221,000
Operation and upkeep of dam reservations	533,770	607,000	610,000
Operation of reservoir lands	1,040,180	1,085,000	1,075,000
System improvement studies	54,434	53,000	60,000
Other operations	9,373	11,000	8,000
Maintenance	186,426	243,000	227,000
Total direct expenses:			
Financed from appropriations	2,510,199	2,685,000	2,682,000
Financed from proceeds	1,978,487	2,078,000	2,078,000
Total	4,488,686	4,763,000	4,760,000
Distribution of administrative and general expenses (schedule B–4)	302,407	320,000	320,000
Total expenses before depreciation	4,791,093	5,083,000	5,080,000
Depreciation on multiple-use facilities	2,929,334	2,925,000	2,930,000
Total expenses	7,720,427	8,008,000	8,010,000
Net expense of multipurpose reservoir operations	7,421,620	7,727,000	7,727,000
ALLOCATION TO PROGRAM			
Navigation operations:			
Net direct expenses	1,251,371	1,338,000	1,336,000
Administrative and general expenses	90,722	96,000	96,000
Total before depreciation	1,342,093	1,434,000	1,432,000
Depreciation	790,920	790,000	790,000
Total navigation operations	2,133,013	2,224,000	2,222,000
Flood control operations:			
Net direct expenses	1,258,828	1,347,000	1,346,000
Administrative and general expenses	90,722	96,000	96,000
Total before depreciation	1,349,550	1,443,000	1,442,000
Depreciation	908,094	905,000	905,000
Total flood control operations	2,257,644	2,348,000	2,347,000
Power operations:			
Net direct expenses	1,679,680	1,797,000	1,795,000
Administrative and general expenses	120,963	128,000	128,000
Total before depreciation	1,800,643	1,925,000	1,923,000
Depreciation	1,230,320	1,230,000	1,235,000
Total power operations	3,030,963	3,155,000	3,158,000
Total net expenses	7,421,620	7,727,000	7,727,000

MULTIPURPOSE RESERVOIR OPERATIONS (SCHEDULE B–2)

The 1961 estimate for multipurpose reservoir operations is $4,760,000, of which $2,682,000 will be financed from appropriated funds and $2,078,000 from proceeds. Income is estimated at $283,000.

Multipurpose reservoir operations relate to the management, operation, and maintenance of 19 multipurpose reservoirs created by TVA dams. The reservoirs are managed primarily for purposes of navigation, flood control, and power. Consistent with these purposes, the reservoirs also serve other interests, including programs of other public agencies. The reservoirs have approximately

10,000 miles of shoreline. TVA has responsibility for managing land or administering land rights on approximately 360,000 acres of land surrounding the reservoirs.

TVA's multipurpose reservoir operating costs are carried in a single program category, although for accounting purposes they are distributed to the three primary programs—navigation, flood control, and power. The net costs are distributed approximately 30 percent to navigation, 30 percent to flood control, and 40 percent to power. The navigation and flood control portions are financed from appropriated funds and the power portion from power proceeds.

Water dispatching operations (*$725,000*)

This involves the dispatching of water through the reservoir system to serve most effectively the major programs of navigation, flood control, and power, and at the same time to serve other important interests in a manner consistent with the needs of these three major programs. To do this job efficiently requires continuous knowledge of the amount of water stored in each reservoir, the amount flowing in streams, the rain falling and that likely to fall in the next few days on each watershed. Close cooperation with the U.S. Weather Bureau and the U.S. Geological Survey insures full use of all data and services available from these agencies, thereby avoiding duplication.

The Tennessee is the world's largest controlled river system. It provides more than 14 million acre-feet of useful controlled storage, a 650-mile channel for 9-foot-draft navigation, and has installed hydroelectric generating capacity of more than 3 million kilowatts. The system consists of 32 major projects, including 25 TVA-owned dams in the Tennessee Valley, 1 dam owned by TVA on a tributary of the Cumberland River, and 6 dams on the Little Tennessee River which are owned and operated by the Aluminum Co. of America in accord with water control instructions from TVA. All projects are operated according to instructions developed at TVA's central water control office at Knoxville, Tenn. Suboffices for collection and analysis of data are located at appropriate points in the Tennessee Valley. To determine accurately rainfall amounts and intensities throughout the area under this program, TVA maintains a network of 399 rain gages, including 20 equipped with radio reporting equipment, and in addition utilizes wherever feasible 163 rain gages operated by the Weather Bureau and other agencies. To get information on the amount of water flowing in streams, the USGS, by agreement, furnishes data to TVA from 90 USGS-operated stream-gaging stations throughout the valley, and TVA secures additional information from 104 TVA-operated gages, about two-thirds of which are headwater and tailwater gages at dams and at navigation locks. To plan for water-dispatching operations, information is also required on expected rainfall. The Weather Bureau, by agreement, furnishes TVA daily and longer period forecasts of rainfall, operates an electronic flood-routing unit to aid in forecasting streamflows, and supplies TVA with forecasts of light intensities, humidities, temperatures, and other meteorological factors needed in system operation. Special equipment developed and maintained by TVA, installed on 41 special-type gages, transmits rainfall amounts and stream heights from remote areas automatically by radio.

All the data on rainfall, streamflow, and reservoir storage is received in a central office in Knoxville where it is assembled and analyzed. From the data, engineers formulate instructions for storing or releasing water. The instructions are transmitted through the power-dispatching offices to the operators at each dam who operate the facilities that store or release water. A daily river bulletin, published cooperatively with the U.S. Weather Bureau, is distributed to persons and firms concerned with stream and reservoir elevations. Data is exchanged regularly with the Corps of Engineers in scheduling Tennessee Valley reservoir system outflow to provide maximum benefit to the Ohio and Mississippi Rivers during both low-flow and flood-flow periods.

Water control investigations (*$360,000*)

This includes a variety of studies and investigations needed in connection with the operation of the multipurpose reservoir system. Owners of property adjacent to the reservoirs often claim that fluctuating water levels damage their farmlands or pollute their wells, and careful field engineering investigations must be made to determine the facts for use in possible litigation. Sediment in the reservoirs reduces storage capacity, so field surveys are made on each reservoir at intervals of about 5 years to determine the storage lost. During 1961 field sediment surveys will be made on several tributary reservoirs. In addition,

office computations of sediment volumes will be made for reservoirs for which field surveys are being made in 1960. During periods of high streamflow, discharges over the spillways are compared with those predicated from model tests made before the dams were built to assure that the structures operate as designed.

Water control investigations also include studies to determine the effects of impoundages and water-control practices upon water quality and stream pollution, studies of the effects of impoundages and system water control operations on fish and waterfowl, and determination of feasible water-control practices which may be employed to minimize adverse effects on migratory waterfowl and on commercial and sport fishing.

Malaria control ($454,000)

Plans for malaria control for 1961 on six main-river reservoirs are substantially the same as for 1960, and include plant growth control by mechanical and chemical means on 1,003 acres, drift removal from 100 acres, maintenance of 104,550 linear feet of drainage ditches, application of larvicides by aircraft on 20,400 acres, and operation and maintenance of six dewatering areas involving 18,300 hours of pumping operations.

Control of malaria associated with TVA reservoirs requires repetitive control measures such as elimination of shoreline vegetation by mechanical means and herbicidal applications, and larvicidal spraying with DDT; field inspections to measure the prevalence of malaria-carrying mosquitoes; appraisal of control methods; and development of improved techniques. Permanent shoreline improvements and fluctuation of water levels make it possible to keep the level of repetitive operations much lower than would otherwise be necessary. Repetitive control measures are limited to six main-river reservoirs, where conditions are most conducive to the breeding of malaria mosquitoes. Control measures on other reservoirs are not scheduled but are done as the need may arise.

Malaria control measures developed and applied by TVA have reduced the incidence of the disease to the point of virtual disappearance along the Tennessee River. Even though malaria has practically disappeared along the Tennessee River, control measures must be continued and carefully appraised to avoid a recurrence of the disease.

Plant protection and services to visitors ($1,221,000)

This activity includes services at TVA multipurpose dams to protect the properties against damage from fire, depredation, sabotage, or theft; and to provide for reception of visitors. The scope of this activity is based primarily on current security information and tests of the adequacy of protection by periodic surveys made by representatives of U.S. military forces. The personnel engaged in this activity is so assigned as to make property protection its major function, with receiving, protecting, and informing visitors, and enforcement of Federal and State laws and project regulations as important subsidiary functions. The 1961 estimate is based on continuation of present standards of protection, providing for the equivalent of 28.77 full-time posts at 17 dams (no posts are established at Chatuge or Nottely Dams)—an average of 1.69 full-time posts per project.

Operation and upkeep of dam reservations ($610,000)

The 19 multipurpose dam reservations include 13,825 acres of land, 92 miles of graveled and hard-surfaced roads, and about 20 miles of walks and paths. A variety of operations is necessary for the upkeep of these roads and grounds. Roads, parking areas, and walkways are maintained; grass-covered public-use areas around the dams are kept clean, mowed, graded, and reseeded when necessary; shrubs are trimmed and replaced as required; signs and guardrails are painted periodically and replaced as necessary; water supply, janitorial, and other services are provided. Of the total dam reservation acreage, about 60 percent is in natural or forest cover; about 15 percent is maintained as meadow or pasture; and about 25 percent is maintained for intensive public use.

Operation of reservoir lands ($1,075,000)

This is made up of a variety of activities related to the management of reservoir land owned or controlled by TVA. It includes such tasks as surveillance of land to control trespass, surveying land to maintain boundary markers, recording changes in landownership, reviewing land to identify surplus acreage, selling surplus land, licensing reservoir lands, providing fire protection, and marketing the forest products on the lands.

As of June 30, 1959, TVA owned about 247,000 acres of land around the margins of the multipurpose reservoirs and held easement rights on an additional 113,000

acres above normal lake levels. These lands are used by a variety of individuals, agencies, and private groups for farming, grazing, parks, camps, boat docks, wildlife refuges, and other purposes. Continuous surveillance is necessary to assure that trespasses are controlled and that authorized uses do not conflict with the primary purposes of the reservoirs and are consistent with full public use of the reservoirs. Engineering investigations, surveys, and maps are made to maintain and preserve survey control markers; to install and maintain property boundary and maximum reservoir level markers; and to record changes in landownership and physical developments on the land which are related to TVA's program responsibilities. The lands held by TVA are reviewed periodically in the light of changing program requirements; lands no longer necessary for program purposes are sold. Selling costs are included in this category.

The licensing of reservoir lands for agricultural purposes involves the public offering of available lands, establishment of minimum rental rates, review of applications, approval of rental rates, issuance of licenses, collection of rentals, and enforcement of license provisions. It is estimated that 1,129 licenses will be issued in 1961 for the use of 26,121 acres for such purposes, with estimated revenues of $69,500. Reservoir land operation includes provision of forest fire protection and marketing of timber and other forest products through sales of stumpage. Approximately 3,750 cords of pulpwood and 5,700,000 board-feet of timber are projected for sale in 1961, with a total estimated sales price of $145,100. Revenues from miscellaneous reservoir land operations, including revenues from leased or licensed boat docks, cabin sites, and group camps are estimated at $19,400 in 1961.

Total income expected to be realized from operation of reservoir lands is $241,000 in fiscal year 1960 and $234,000 in 1961. Estimates of income from sales of reservoir land are $500,000 in each of fiscal years 1960 and 1961. The income from land sales is treated as a reduction in the investment in the reservoirs, and hence is not reflected in the estimates for the operation of reservoir lands.

System improvement studies ($80,000)

Continuing studies are necessary to improve the water control system in the Tennessee Valley by altering existing projects and by adding new projects. These activities include brief studies of existing projects to see how they might be improved in the light of operating experience to date, reconnaissance-type investigations, including geologic investigations of the undeveloped portions of tributary streams to locate damsites worthy of more intensive study in developing the valley's water resources; maintenance of a current inventory of information of undeveloped damsites, including approximate data on type of development, foundation conditions, cost of development, and probable benefits; compilation and application of data for determination of the fundamental hydraulic features on which the planning, design, construction, and operation of the dams are based; and preparation and analysis of reports on special design features which will serve as references and aids for future design work.

Other operations ($8,000)

This category covers minor operating activities not otherwise classified. It includes studies such as the allocation of the investment in the multipurpose reservoir system whenever such studies are required as a result of construction of additions to river control facilities and investigations as may be necessary to resolve right-of-way problems on relocated highways and railroads in reservoir areas.

Maintenance ($227,000)

Maintenance activities consist mainly of painting spillway gates; maintaining spillway gate operating devices and other equipment and structures at the multipurpose dams; and maintaining fills on relocated highways and railroads affected by adjacent water. Maintenance of certain earthfills is required under the terms of contracts entered into with the owners of the highways and railroads when TVA dams were built. Maintenance costs vary from project to project and from year to year.

Topographic mapping ($177,000)

The estimate for 1961 of $177,000 will permit continuation of topographic mapping at a rate which, if maintained, will permit completing by the end of fiscal year 1962 the remaining 4,234 square miles in the Tennessee Valley yet to be mapped; 41,878 square miles were completed at the end of fiscal year 1959. The

work is carried out in cooperation with the U.S. Geological Survey. Valley maps are made to USGS standards and specifications as a part of the national series and are made available to the public for purchase at a nominal price.

The valley topographic mapping program was started in 1937 and was scheduled for completion in the 1940's. World War II prevented realization of this goal. In the fall of 1941 TVA was asked by the U.S. Army to accept responsibility for mapping strategic coastal areas. Extensive foreign areas were added to this assignment, and valley mapping was drastically curtailed until after the Japanese surrender.

The complete valley mapping program covers 763 quadrangles, or 46,112 square miles, with a total estimated cost of $6,400,000. Six hundred and ninety-one quadrangles, or 41,878 square miles, were completed and printed by June 30, 1959. The remaining 72 quadrangles, or 4,234 square miles, and revisions of outdated maps are in various stages of completion, because the steps required in producing the maps, such as aerial photography, control surveys, and manuscript preparation must be carried out in sequence. Total expenditures to June 30, 1959, for the completed quadrangles and for work done on quadrangles in various stages of completion were $5.85 million. As of June 30, 1959, about $0.6 million of the total expenditure of about $5.85 million had been spent on unfinished areas, mostly for aerial photography, basic field survey work, and other activities preliminary to actual drafting. The value of this expenditure can be realized only by performing the additional work required to complete and print the maps.

TVA's planning, construction, and operations depend heavily upon adequate topographic maps of the valley area. Completion of the mapping will be of great benefit not only to TVA but also to the public. TVA receives numerous requests for maps of areas not yet completed. The maps fit into the broad plans of the USGS for nationwide map coverage and are produced at costs that compare very favorably with costs of other mapping agencies. Availability of topographic maps is also an important consideration in national defense.

Fertilizer, Agricultural, and Munitions Program

As directed by the Tennessee Valley Authority Act, the TVA maintains and operates chemical laboratories and production facilities at Wilson Dam, Ala., as a national research and development center for new and improved fertilizers and munitions. The fertilizers produced are used in educational demonstrations throughout the United States to encourage the wider use of new and improved fertilizer materials and more efficient fertilization practices. Limited special research and demonstrations are also undertaken to aid agricultural development within the Tennessee Valley.

In periods of national emergency the chemical research and manufacturing facilities are available for the development and production of defense materials upon the request of defense agencies.

CHEMICAL FACILITIES

The 1961 estimate for chemical facilities, which covers the acquisition of phosphate land and mineral rights and additions, replacements, and improvements to the chemical laboratories and production plant, is $2,157,000. Details are shown in the following table and the text which follows.

	1959 actual	1960 estimate	1961 estimate
1. Phosphate lands and rights	$248,319	$273,000	$225,000
2. Phosphate facilities	358,088	381,000	1,910,000
3. Nitrogen facilities	36,014	----------	90,000
4. Combination fertilizer facilities	146,300	----------	----------
5. Equipment modifications to demonstrate new fertilizer processes	274,319	485,000	----------
6. Plant replacements	81,275	104,000	105,000
7. General chemical facilities	−146,161	−188,000	−173,000
Total	998,154	1,055,000	2,157,000

1. Phosphate lands and rights, $225,000

The 1961 estimate provides for continued prospecting and acquisition of reserves in Florida.

The phosphate ore used by TVA in the production of new and improved fertilizers or for munitions comes from the Tennessee and Florida phosphate fields. TVA owns and at present is mining reserves in Tennessee and is acquiring reserves in Florida. Only about one-third of TVA's Tennessee reserve is of high enough grade to be used directly for the electric furnace production of phosphorus. A part of this high-grade ore is being conserved for use during national emergencies. The importance of such a reserve is illustrated by the fact that during World War II well over a million tons of high-grade ore from TVA's Tennessee reserve was used mainly in the manufacture of munitions.

To permit the use of the low-grade Tennessee ore as mined, high-grade Florida phosphate ore is mixed with it. TVA is now buying its requirements of Florida phosphate ore from commercial sources. To assure a dependable and economical supply of Florida phosphate ore when needed, TVA must have a reserve in that field. Present plans call for a 25-year reserve, which is generally considered a minimum economic reserve. Purchases planned for 1961 will add 2.5 years of supply to the reserve, bringing it to 21.6 years.

2. Phosphate facilities, $1,910,000

The 1961 estimate includes $1,200,000 for beginning the construction of a new electric phosphorus furnace to replace two small furnaces that are fully depreciated. Because of age and condition these two furnaces are inadequate for the needs of fertilizer development and they are undependable as national defense capacity. Their replacement is an urgent requirement. Both are in need of major repairs and they are expensive to operate. The operating crew for the single new furnace will be half that for the two old furnaces. Other operating expense and electricity consumption will be less. Estimated operating savings are $250,000 a year, which will equal the total cost of the new furnace of $2,125,000 in a few years. The new furnace will be completed in fiscal year 1962.

In 1960 construction of a phosphoric acid production unit was started, to be completed in 1961. This unit, to cost $835,000, will replace two small units which are largely depreciated. The existing units were designed for the production of conventional electric furnace phosphoric acid used in the manufacture of fertilizer. They are inadequate for the efficient production of TVA's new superphosphoric acid, which is approximately 50 percent more concentrated than conventional acid. Production of superphosphoric acid involves high temperatures and consequent extensive corrosion. For sustained, efficient production, greater cooling during the operation and the use of corrosion resistant materials are required. The old units, adapted to the production of superphosphoric acid, are expensive to maintain and to operate. Their replacement will firm-up production capacity, permit sustained operations, reduce acid loss, and reduce maintenance expense. Savings will equal the cost of the new unit in about 4 years.

A substantial part of the raw phosphate for TVA's phosphorus production comes from reserves it owns in Tennessee. A part of the better grade reserve is adjacent to the city of Franklin, which is expanding. Therefore mining operations should be started in the very near future in order that the phosphate ore can be removed before the land it underlies is required by the growing community. In 1961, TVA will provide facilities to load and transport raw phosphate from the Franklin area. This involves an extension of a railroad spur, a loading tipple, and related facilities, all estimated to cost $168,000.

Other improvements to phosphate facilities planned for 1961 include facilities for the recovery in salable form of byproduct fluorine, a potential atmospheric and stream pollutant. Another improvement under study is the installation of facilities for better methods of collecting and handling phosphorus. Savings resulting from more efficient recovery operations would equal the investment in plant improvements in a short time.

3. Nitrogen facilities, $90,000

In the operation of facilities for the manufacture of granular nitrogen fertilizers, quantities of dust are formed. The present dust-collecting system in the plant cannot handle these nitrogen fertilizer fines adequately, with the result that they escape into the atmosphere. Besides representing an economic loss, the dissipation of this dust creates undesirable working conditions. It

increases the difficulty and cost of plant housekeeping. It is planned to provide adequate dust-collecting facilities and related equipment to trap the dust now escaping and to return it to production channels. These improvements to nitrogen facilities will cost $42,000.

The 1961 estimate of $90,000 also covers technological improvements to nitrogen facilities. While it is not possible to identify all opportunities for improvement, several potentially valuable developments are now under study.

4. Combination fertilizer facilities; and
5. Equipment modifications to demonstrate new fertilizer processes

There are no plans for adding to combination fertilizer facilities or for modifying present equipment to demonstrate new fertilizer processes in 1961.

6. Plant replacements, $105,000

The 1961 estimate is for making additions and improvements within the TVA chemical plant which may be found necessary but which cannot be identified and scheduled very far in advance of the need. This is less than 1 percent of the value of the plant before depreciation. Much of TVA's chemical plant and equipment is old, some of it having been built or acquired during World War I. It is used for experimental production during peacetime. In order to realize the maximum usefulness of the facilities, they are generally retained in service until they wear out, fail, or become obsolete. There is no program of scheduled retirements under which items are replaced when their theoretical useful life has been reached. Further, in a plant the size of the TVA chemical plant, many occasions may arise in which facilities must be replaced to continue operations or to protect employee health and safety. These replacements are of an emergency character and cannot be anticipated as individual items for inclusion in the budget estimates for a particular fiscal year. Examples of replacements which may be required are: electric furnace shell, crucible, transformers, precipitator, nitric acid absorption towers, and railroad facilities.

7. General chemical facilities, $173,000

The 1961 estimate includes $114,000 for work tools and equipment, preliminary investigations and design studies, and miscellaneous improvements to general chemical facilities. A credit of $287,000 is taken here for depreciation[1] on general chemical plant and shop facilities.

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[1] NOTE.—In the interest of economy and efficiency, TVA general facilities and equipment are "pooled" and made available to programs and projects on a rental basis. The rental rates include appropriate provision for depreciation; therefore, budget requirements for each program and project include charges for depreciation. Since depreciation is a type of expense not requiring current outlay of funds, the total of the depreciation charges is offset to avoid overstatement of fund requirements. The $287,000 credit budgeted here offsets total charges included in program and project estimates as depreciation on chemical general facilities.

SCHEDULE B–3.—*Fertilizer, agricultural, and munitions development (for fiscal years ending June 30, 1959, 1960, and 1961)*

	1959 actual	1960 estimate	1961 estimate
Income:			
Income from fertilizer production and distribution	$14,855,083	$20,134,000	$19,939,000
Income from farmer payments for test-demonstration fertilizer	522,042	532,000	736,000
Other income	2,149	3,000	5,000
Total income	15,379,274	20,669,000	20,680,000
Expenses:			
Research on fertilizer products and processes (appropriations)	1,693,170	1,724,000	1,823,000
Basic agronomic research (appropriations)	395,918	430,000	445,000
Fertilizer production and distribution (nonpower proceeds)	16,252,552	19,012,000	18,594,000
Fertilizer marketing studies and demonstrations (nonpower proceeds)	86,254	101,000	98,000
Farm test demonstrations:			
Appropriations	873,239	841,000	1,017,000
Nonpower proceeds	522,042	532,000	736,000
Total, farm test demonstrations	1,395,281	1,373,000	1,753,000
Agricultural development projects (appropriations)	76,293	91,000	101,000
Total direct expenses:			
Financed from appropriations	3,038,620	3,086,000	3,386,000
Financed from nonpower proceeds	16,860,848	19,645,000	19,428,000
Total	19,899,468	22,731,000	22,814,000
Distribution of administrative and general expenses (schedule B–4)	462,746	495,000	495,000
Total expenses before depreciation	20,362,214	23,226,000	23,309,000
Depreciation on chemical facilities	970,594	945,000	945,000
Total expenses	21,332,808	24,171,000	24,254,000
Net expense	5,953,534	3,502,000	3,574,000

FERTILIZER, AGRICULTURAL, AND MUNITIONS DEVELOPMENT (SCHEDULE B–3)

Appropriated fund expense for this program in 1961 is estimated at $3,386,000. This covers the cost of research on products and processes, basic agronomic research, the net cost of farm test demonstrations, and agricultural development projects. Program expenses (primarily the cost of experimental manufacture and distribution of fertilizer) to be financed from nonpower proceeds are estimated at $19,428,000. Income, almost entirely from the sale of fertilizer, is estimated at $20,680,000.

PURPOSE OF THE PROGRAM

TVA's chemical research, production, and distribution operations comprise a single program with the dual purpose of developing and encouraging the use of new and improved fertilizers and processes and of providing materials and services essential to the national defense. The principal peacetime objectives of the fertilizer, agricultural, and munitions program are (1) to develop new and improved fertilizers and processes for their manufacture in order to lower their cost to the farmer, and to increase their effectiveness; (2) to test and demonstrate the value and best methods of fertilizer use; and (3) to aid in agricultural development in the valley. The first two objectives pertain to the Nation at large.

The TVA chemical research and production facilities are an important segment of the national defense program. They are maintained and operated in such a way as to be immediately available for national defense. During World War II and the Korean war, TVA conducted research and supplied essential munitions materials at the request of defense agencies. TVA aided the U.S. Army Chemical Corps in developing and constructing a plant at Muscle Shoals, Ala., for production of intermediate products used in the manufacture of nerve gas. From 1952 until 1957, when the plant was put in standby status, TVA operated the plant for the Chemical Corps, using phosphorus from TVA's chemical facilities.

RESEARCH ON FERTILIZER PRODUCTS AND PROCESSES ($1,823,000)

The 1961 estimate of $1,823,000 covers three phases of research on fertilizer products and processes—fundamental research, applied research, and process engineering.

Research in the field of fertilizer technology is carried out in this country mainly by TVA, USDA, and private industry firms and groups. In general, industry research on processes and products is for short-term gains. The principal objective of TVA fertilizer research is to conduct broad projects of potential value to the Nation that are beyond the immediate interest or capacity of industry. The TVA and USDA work cooperatively with each other and with industry to the fullest extent possible to avoid duplication. Information on TVA fertilizer studies is made available to industry through publications, correspondence, and visits by industry representatives to the TVA chemical plant. This cooperation has provided a means of keeping the fertilizer industry informed of TVA technological developments, and through it to pass on to farmers the benefits of these developments. Through fiscal year 1959 a total of 184 licenses to use TVA inventions or to manufacture TVA-developed equipment had been issued to 148 commercial concerns.

Fundamental research

In fundamental research the principles of physical chemistry are applied in the development of new chemical knowledge about fertilizer products and processes and about the behavior of fertilizer compounds in the soil. This involves laboratory experiments and a continuous study of pertinent literature.

A major fundamental research project in 1961 will be the adaptation of high-temperature research techniques to basic studies of chemical fertilizer compounds with particular reference to slowly soluble nitrogen compounds, which would be available to plants over a longer period with consequent reduction in fertilizer losses and in the amount of labor required to apply fertilizer. A second major study is the continuation of research on the movement and reactions of phosphorus in the soils. Only a small amount of the phosphorus in fertilizer is immediately available to the growing plant. The discovery of ways to increase the efficiency of phosphorus utilization by plants would be a significant breakthrough in fertilizer technology. Fundamental research will be continued on the conditioning of fertilizers to improve physical properties and on the use of liquid anhydrous ammonia, the least expensive source of nitrogen, as a reactant in the production of fertilizers.

Applied research

Short-range chemical research and small-scale engineering research and development are conducted to define, develop, evaluate, and promote the application of new and improved processes for the production of fertilizers.

Surveys and experimental work will be continued on the development of new nitrogen compounds. Various high-nitrogen organic compounds will be prepared for agronomic tests. Exploratory tests show that it may be feasible to produce new nitrogenous fertilizers using urea produced under a modified process.

Laboratory studies to improve the recovery of phosphate from material mined from Florida hard-rock fields will be continued. Under conventional methods, over half of the ore is wasted. If suitable methods can be developed for recovering the material now being lost, the Florida phosphate reserves will be extended greatly.

Small-scale experimental work will be undertaken to improve the production of phosphoric acid by the wet process. Wet-process acid is generally cheaper than electric furnace acid and is more readily available, but it is generally regarded as unsuitable for use in liquid fertilizers. Studies will also be made of the use of wet-process acid in the manufacture of superphosphoric acid.

Other applied research in the field of phosphorus and phosphate technology will be related to the recovery and utilization of fluorine, an unavoidable by-product of phosphate processes.

Several promising developments in the field of combination fertilizers will be investigated, among them the use of low-grade phosphate ores in the production of high-analysis fertilizers. Studies will be made to define a satisfactory process and equipment for making ammonium polyphosphate, a new solid fertilizer of very high analysis. Work will be continued on a process to make a high-analysis fertilizer from ammonia, carbon dioxide, and phosphorus compounds and on the manufacture of liquid fertilizer using wet-process phosphoric acid and from

superphosphoric acid. Studies of the production of highly concentrated fertilizers in which fertilizer salts are suspended in solution will be continued.

Process engineering

Process engineering consists of the development of processes for the production of fertilizers; the design, construction, and operation of pilot plants; preparation of special fertilizers for field-scale agronomic research; and technical supervision of the initial operation of TVA demonstration-scale fertilizer units.

During 1961 pilot-plant work on the utilization of superphosphoric acid in high-analysis superphosphate will be extended to cover the production of that material with concentrated wet-process acid. Pilot-plant studies of the concentration of wet process acid are expected to develop a feasible process. Work will also be directed at the economical commercial scale recovery of byproduct fluorine.

Pilot-plant studies of the production of ammonium polyphosphate will be initiated in 1961. It is planned to produce this fertilizer from both wet-process and electric furnace acid. Studies will be made to determine the feasibility of an ammonium polyphosphate that can be shipped in solid form and be dissolved in water at the point of use to produce a liquid fertilizer with savings in freight costs over conventional plant-mixed liquid fertilizers.

Previous pilot-plant tests developed the process for making high-analysis granular fertilizers utilizing ammonium nitrate in solution and phosphoric acid. This work will be extended to tests of the substitution of urea for ammonium nitrate to produce a fertilizer of higher analysis.

Work will continue on improvements in conventional fertilizer processes and on production of ammonium phosphate fertilizers for which there is a growing demand.

BASIC AGRONOMIC RESEARCH ($445,000)

The program of basic agronomic research covered by this estimate of $445,000 is national in scope and includes:

1. Initial evaluation of TVA experimental fertilizers. This work is done at TVA's agronomic research laboratories at Wilson Dam, Ala., where it can be closely coordinated with the work of the chemists and engineers who do product and process research and development.

2. Field evaluation of these fertilizers on major representative crops and soils of the United States. To provide this wide coverage, this research phase is carried out by selected State agricultural experiment stations working under cooperative contracts with TVA.

3. Fundamental research on soil-plant-fertilizer relationships. This involves the cooperation of TVA agronomists and soil scientists, TVA chemists, and research personnel of selected State agricultural experiment stations.

4. Development of better methods of agronomic research to provide a basis for economic interpretation of results and improved fertilizer-use recommendations. This work is done in cooperation with selected land-grant colleges having especial competence in both agronomy and agricultural economics.

During 1961 major attention will be given to slowly soluble potassium fertilizers; new nitrogen-phosphorus fertilizers; phosphorus source behavior in relation to chemical nature and rate, placement, and time of application; and low-solubility nitrogen forms. Cooperative agronomic research work will be performed in 20 States.

Economists and agronomists at six land-grant colleges will conduct joint research to relate the agronomic and economic problems of fertilizer use in order to obtain basic data to guide farmers in the more economical use of plant nutrients.

TVA agronomic research facilities at Wilson Dam, where its chemical engineering research and development work is conducted, present a unique opportunity for agronomists to collaborate with chemists and chemical engineers in fertilizer research and development. Such cooperative effort, involving the use of common research facilities, speeds progress not only in fertilizer evaluation but also in production of new fertilizers.

In basic agronomic research, the behavior of various materials is assessed through studies conducted under controlled laboratory conditions. Here the objective is to find out how different materials undergo reaction with the soil,

and to study the variable soil and environmental factors which influence soil-fertilizer reactions. Such an approach, coupled with field-plot investigations performed by State agricultural experiment stations, has as its ultimate goal the determination of sound bases for predicting fertilizer behavior and fertilizer-use practices which will give best crop response under a wide variety of soil conditions.

After plant response to fertilizer application is determined, it is necessary to interpret the agronomic findings in economic terms. It is not enough to know that a particular plant nutrient applied a certain way is effective in aiding plant growth. Whether the practice is economical must likewise be determined. These studies—agronomic and economic—lay a basis for sound fertilizer recommendations to farmers by enabling agricultural workers to determine the most economical combinations and amounts of plant nutrients that can be applied to crops under varying price-cost relationships.

FERTILIZER PRODUCTION AND DISTRIBUTION ($18,594,000)

This table shows the breakdown of actual income and expenses of fertilizer production and distribution for 1959 and estimates for 1960 and 1961.

	1959 actual	1960 estimate	1961 estimate
Income:			
Sales of products	$14,444,459	$19,469,000	$18,889,000
Sales of byproducts and recovery of other expense	410,624	665,000	1,050,000
Total income	14,855,083	20,134,000	19,939,000
Expenses:			
Costs of products, including depreciation	17,104,993	19,846,000	19,803,000
Other expenses	1,018,238	969,000	898,000
Gross cost	18,123,231	20,815,000	20,701,000
Less products used in farm test-demonstrations and other TVA activities	955,665	914,000	1,218,000
Less depreciation included above	915,014	889,000	889,000
Total direct cost	16,252,552	19,012,000	18,594,000
Distribution of administrative and general expenses	337,784	360,000	360,000
Total expenses before depreciation	16,590,336	19,372,000	18,954,000
Net income or expense (−) before depreciation	−1,735,253	762,000	985,000

TVA produces and distributes fertilizer:

1. To demonstrate the technical and commercial feasibility of new or improved fertilizer processes and to encourage their adoption by industry;
2. To supply fertilizers for test demonstrations on practical farms;
3. To produce new or improved fertilizers in quantities sufficient for widespread educational introduction, especially to pioneer in new uses and more economical materials;
4. To produce high-analysis fertilizers and materials for use by commercial concerns in the manufacture of new or improved products or in new or improved processes which will cheapen the cost of fertilizers to farmers; and
5. To supply munitions material or render other services for national defense.

Small quantities of TVA fertilizers, totaling about 200 tons annually, are made available free of charge to agricultural experiment stations for specific research projects as discussed on pages 68–69. One educational program, involving farm test demonstrations of TVA fertilizers under contract agreements with 32 land-grant colleges for supervision, utilizes 15,000 to 20,000 tons and is described on pages 83–85. The other more extensive educational program, involving selected distributors, dealers, and farmers, utilizes approximately 250,000 to 300,000 tons of TVA fertilizers of all types annually. This distributor demonstration program is conducted through 81 wholesale distributors under regular educational sales contracts and about 65 fertilizer manufacturers having special contracts limited to small amounts of material for use in experimental work in

their own plants. The distributor demonstration program has five principal objectives, the first three of which are nationwide aims:

1. To encourage more widespread introduction of new and improved TVA fertilizers to distributors and farmers;
2. To promote improved fertilization practices;
3. To aid in reducing plant nutrient costs to farmers through lower cost high-analysis mixed fertilizers and improved distribution methods;
4. To promote watershed protection and agricultural development of the Tennessee Valley; and
5. To provide limited amounts of material to fertilizer manufacturers and mixers for experimental use as intermediate materials in their plants.

The use of specific materials for these objectives is described for each material beginning on page 74.

The educational features of the distributor demonstration program are carried out primarily by fertilizer manufacturers and mixers, wholesale and retail distributors, and farmers. The land-grant colleges take part in defining each State's program. TVA fertilizer materials are confined to uses and practices in the forefront of knowledge of the economical and efficient use of fertilizer. In this area, lack of knowledge, lack of materials, lack of acceptance, problems of persuasion, and other uncertainties are so great that adequate progress does not result from normal educational and promotional programs conducted in the distribution of commercially produced fertilizers.

The small amounts of material made available to manufacturers and mixers under special contracts enable them to make trial high-analysis mixtures in their plants using TVA materials which are not commercially available. Development of a familiarity with and a demand for these materials should hasten their acceptance for commercial production.

TVA fertilizers are priced to serve the program objectives described above rather than to provide maximum revenue to TVA. In order to encourage farmers to try experimental products or to take part in educational programs promoting more efficient fertilization and conservation practices, prices are set slightly below the price of plant nutrients in conventional materials or below the estimated price of new products were they commercially available.

The following table shows for each major fertilizer product the tonnages estimated to be distributed in 1961 and the estimated cost and sale price per ton. The 1961 plans reflect the accelerated introduction of new products resulting from TVA research and development. Only two of the eight fertilizers listed below were being produced prior to fiscal year 1955, and one of these is in a new and improved form.

Estimated fertilizer distribution—tons of material, fiscal year 1961

	Plant food content (N–P–K)	Total distribution tons material	Cost of product to TVA	TVA wholesale price per ton [1]
Concentrated superphosphate	0–54–0	50,000	$69.65	$69.13
Calcium metaphosphate	0–64–0	60,000	73.50	71.36
Ammonium nitrate, granular	33.5–0–0	65,000	41.00	56.30
Ammonium phosphate nitrate	30–10–0	45,000	51.20	62.10
Diammonium phosphate	20–52–0	30,000	99.50	100.16
	21–53–0			103.32
Leached zone fertilizer	15–15–15	11,000	69.25	63.45
	20–20–0		76.80	67.00
Liquid fertilizer (bulk)	11–33–0	15,000	52.15	59.18
Ammonium nitrate sulfate (3 percent sulfur)	32–0–0	18,000	41.00	53.85

[1] Bagged, f.o.b., Sheffield, Ala.

In addition, part of the chemical output will be disposed of in the form of intermediate products. Phosphorus will be sold to other Federal agencies for defense use. Limited amounts of ammonia, nitric acid, and superphosphoric acid, the latter a new TVA development, will be sold to fertilizer producers for use in experimental or introductory production of high-analysis mixtures.

Concentrated superphosphate, 54 percent available P_2O_5

In 1958 TVA began the experimental production of a highly concentrated superphosphate fertilizer from a superphosphoric fertilizer solution it had

developed. This improved fertilizer, which is not generally available commercially, contains 54 percent available P_2O_5, compared with 45 to 49 percent in conventional concentrated superphosphate. As it is essentially a new product, the fertilizer will require testing and introduction through educational programs. Distribution of 50,000 tons in 1961 for these purposes is proposed.

During 1961 the material will be distributed to encourage the manufacture of higher analysis mixed fertilizers and for straight application on soil-conserving crops, such as hay, pasture, and grass seed production. Some will be used on selected row crops in closely supervised demonstrations. The material will also be used in special projects with 4–H Club members and in farm and home development projects under Extension Service supervision.

Calcium metaphosphate

Calcium metaphosphate, a product developed by TVA, is the most concentrated solid phosphatic fertilizer being made today. At present TVA is the sole producer. Calcium metaphosphate contains from 60 to 64 percent plant food, and because of this high concentration can be bagged, shipped, and handled at a lower cost per ton of plant food than any other phosphate fertilizer. It is particularly suitable for use in the rapidly growing middle western fertilizer market area. Its use in high-analysis granular mixtures holds promise of further increasing the average analysis of fertilizers and thus of helping the farmer to reduce the unit cost of his fertilizer.

About three-fourths of the 1961 production of 60,000 tons of calcium metaphosphate will be used in demonstrations of new processes for making high-analysis granular materials, bulk-blend operations, new methods of applying fertilizer, and of increasing the analysis of conventional mixed fertilizers. The cost of mixing, bagging, and distributing a ton of mixed fertilizer is substantially independent of the plant nutrient content of the mixtures. It is obvious that if present low-analysis mixtures now generally available commercially are upgraded with a material such as calcium metaphosphate, the savings in bagging, shipping, and handling costs will be great.

The remainder of the 1961 output of calcium metaphosphate will be used in demonstrations emphasizing the production of soil-conserving crops. This includes the amount used on valley farms to promote watershed protection practices.

Ammonium nitrate fertilizer

In fiscal year 1959 TVA began the production of granular ammonium nitrate by a new process. This material has improved physical properties. Most of TVA's 1961 production of ammonium nitrate will be used in educational programs to promote improved fertilization practices, primarily for those crops which provide a maximum protection for the soil; to provide for better use of the land in demonstrations on row crops in accordance with Extension Service programs; and on special projects such as whole farm fertilization projects and farm and home development projects. In these projects the object is to show how the wise and consistent use of fertilizer can help farm families determine the ways they can combine various farm enterprises, resources, and skills to improve the productivity of their farms and to derive greater satisfaction from farm living. This involves a unit approach to farm problems; balanced farming is one of the outgrowths. A small quantity will be used in bulk blends to determine its adaptability for such purposes.

The 1961 production of ammonium nitrate will make it possible for TVA to evaluate its new process under actual manufacturing conditions and to judge the product as to storage and handling qualities and its field application under practical farming conditions.

Despite the great increase in the production of commercial ammonium nitrate, there are many uses for which ammonium nitrate needs to be demonstrated if farmers are to realize the fullest benefits of the most important and economical form of solid nitrogen fertilizer thus far available. Encouragement of its wider and better use through educational programs is a continuing objective of TVA.

Ammonium phosphate nitrate

Ammonium phosphate nitrate fertilizer is made by treating wet ammonium nitrate crystals with phosphoric acid, neutralizing the acid with ammonia, and granulating the mixture. It is not made by commercial producers. The product contains 40-percent plant food—30-percent nitrogen and 10-percent phosphorus

pentoxide—a formulation needed in areas where the soils require heavy applications of nitrogen, light applications of phosphate, and little or no potash. A considerable part of the Midwest is in this soil category, particularly in the small grain area. Distributors in that part of the country have shown great interest in this fertilizer. In addition to its use in direct application, the product is well suited to the production of high-analysis mixtures. TVA first made this material available in 1958. During 1961 approximately 45,000 tons will be produced and distributed for educational purposes to introduce the material to dealers and farmers.

Diammonium phosphate

About 30,000 tons of diammonium phosphate, a material of 74-percent plant food, will be produced by TVA in 1961. Diammonium phosphate is a highly concentrated nitrogen-phosphate fertilizer, homogeneous and readily soluble in water. It contains 21-percent nitrogen and 53-percent phosphorus pentoxide. A ton of it contains almost as much plant nutrient as 2½ tons of mixed fertilizer of the average analysis now used by farmers. At present only very limited quantities of diammonium phosphate are marketed in this country for fertilizer use. During calendar year 1958 total U.S. production, based on published figures and exclusive of TVA material, was about 41,000 tons. There appears to be a potential market for commercial production of several hundred thousand tons a year for use straight or in mixtures. About 50 percent of the amount to be produced by TVA in 1961 will be used by commercial mixers for the purpose of demonstrating new processes, new mixtures, and new methods of application. One-fourth will be used to introduce the material for direct application into regions and for crops where it is not now used or where use is negligible.

Because diammonium phosphate is a new material for farm use and of high concentration, there is need for a continuing educational program to introduce it to farmers.

Leached zone fertilizer

During fiscal year 1959 facilities were completed at Muscle Shoals, Ala., for demonstration-scale production of high-analysis fertilizer from low-grade Florida aluminum phosphate ore. Production began in that year, and 11,000 tons of material will be manufactured in 1961 for introductory use in farm test demonstrations and in distributor demonstrations. There is no commercial production of leached zone fertilizer. Utilization of low-grade ore in the production of this fertilizer will help reduce the cost of mining phosphate and will greatly extend the life of the Florida phosphate reserve.

Tests made independently by TVA and USDA indicate that the physical properties of the fertilier are satisfactory. Field tests show a favorable crop response. However, much more information on the effectiveness and use of aluminum phosphates as fertilizers is needed as this phosphate is different from the calcium phosphate normally used in making fertilizer. Information obtained by TVA will be made available to the fertilizer industry and to farmers to encourage commercial production and wide use of the new fertilizer.

Liquid fertilizers

TVA has developed a highly concentrated superphosphoric acid which is used in the production of high-analysis solid fertilizers. In addition, TVA has developed the means of using it to make liquid fertilizers, for which it has particular advantages. It can be used to make higher grade liquids that will not crystallize even at freezing temperatures and in which larger quantities of trace elements can be held in solution than is possible with conventional materials. Because of the high concentration of liquid fertilizers made with this solution, important savings in handling and shipping costs per unit of plant food are possible. Low plant investment and operating savings resulting from the elimination of granulating, drying, and bagging make liquid fertilizers attractive to fertilizer producers, and labor saving in application is advantageous to the farmer.

A small quantity of liquid fertilizer was produced in 1958 for farm test demonstrations. Production in 1961 will be 15,000 tons, mainly in the form of a base solution of 11–33–0 grade which can be used in this form or in producing other grades, including some containing potash. Distribution by TVA of this small production will demonstrate the process and product to industry and encourage use of the material by farmers.

Ammonium nitrate sulfate

In pilot-plant work on granulation of nitrogen fertilizers, TVA has developed several methods which result in a product of improved physical properties. In one of these processes ammonium nitrate crystals are treated with sulfuric acid, ammoniated, and granulated. The product contains 32 percent nitrogen and 3 percent sulfur. There are sulfur deficient soils in the Southeast, where needed sulfur is obtained from low-analysis mixtures utilizing ammonium sulfate and ordinary superphosphates. Ammonium nitrate sulfate can supply sulfur in a high-analysis product. There is no commercial production of ammonium nitrate sulfate. TVA plans to produce and distribute 18,000 tons of this product in 1961 to permit testing on practical farms and demonstration of the process to industry.

FERTILIZER MARKETING STUDIES AND DEMONSTRATIONS ($98,000)

The 1961 estimate of $98,000 covers TVA's share of the cost of continuing fertilizer marketing studies and demonstrations carried out in cooperation with selected land-grant colleges. These studies and demonstrations are conducted to promote improved fertilizer marketing practices as an aid in lowering the cost of plant nutrients to farmers.

Fertilizer marketing studies and demonstrations comprise the first step in a three-step program designed to help the farmer get better use of his fertilizer dollar. The first step is the collection and analysis of fundamental information on fertilizer demand and marketing. In the second step, this information is passed to distributors and farmers through educational programs. The third step is the adoption of distribution practices that will help lower the cost of fertilizers on the farm.

The fertilizer marketing studies and demonstrations planned for 1961 fall into three categories as described in the following sections.

Economics of fertilizer distribution

These studies are aimed at the development and testing of improved methods of fertilizer marketing and distribution. In the face of rising farm costs it is important that the unit cost of distributing fertilizers be lowered through more efficient practices or that the farmer's increasing needs for better fertilizer be met without increasing unit costs.

One project, started in 1959 and to be completed in 1962, concerns fertilizer education as a dealer service. In many areas fertilizer is sold as a sideline to some other business enterprise and largely as a service to customers. Such dealers have not done much in the way of informing their customers on fertilizers and fertilizer use because they have neither the time nor the ability to do so. In cooperation with Iowa State College, a cooperating fertilizer distributor, and later possibly with a manufacturer of agricultural chemicals, TVA is working on a research and education project to evaluate the effectiveness of a local specialist representing one dealer or a group of dealers who could advise farmers on fertilizer and agricultural chemicals. Findings from this project will help TVA improve its fertilizer education program through dealers. The study will aid the fertilizer and agricultural chemicals industry by demonstrating a new method for improving fertilizer sales and use.

Staff studies on minimum-cost fertilizer mixing and custom three-hopper truck spreading of fertilizer will be continued.

Fertilizer use and sales potential studies

At present there is not enough information available to help farmers determine how much fertilizer they can profitably use in a given situation or to aid distributors to judge fertilizer sales potential. This means that there is no adequate way of estimating fertilizer demand or of developing sound educational programs intended to stimulate it where economically feasible.

TVA, Iowa State College, and the University of Georgia are working on cooperative projects to provide better answers to this question: Considering the farmer's situation in terms of capital, labor, land, and crops, how much fertilizer can he use economically? The answer to this question serves as a basis for making realistic estimates of potential fertilizer demand and for developing plans for meeting that demand effectively. It also will serve as a basis for recommendations on fertilizer use and will provide guides for evaluating the results of fertilizer introduction programs.

These studies, scheduled for completion in 1961, have attracted national attention and their findings are being incorporated in educational programs by State extension services.

Fertilizer demand studies

These studies are conducted to determine the nature and importance of the factors affecting the farmer's demand for fertilizer. Crop and livestock prices, fertilizer prices, and the prices of other farm inputs affect farmer demand for fertilizer because they determine the profit to be realized from fertilizer use. Further, the effective demand for fertilizer is set by the availability of capital to farmers; therefore these studies also include the effects of credit, farm tenure, and related factors on fertilizer demand.

During 1961 a study of the effect of credit on fertilizer demand will be completed in cooperation with the University of Illinois. This study seeks to determine the attitude and practices of credit agencies in extending credit for fertilizer purchases. A related study will be undertaken to determine the nature and effects of the relationships between the demand for fertilizer and the demand for other farm requirements.

A third cooperative study, to be initiated in 1960 with a land-grant college not yet selected, will compare the effectiveness of mass demonstration methods and selected demonstration methods in stimulating farmer demand for fertilizer and the adoption of new and improved fertilizer practices.

These studies are expected to yield practical results for application in fertilizer introduction and distribution programs.

FARM TEST DEMONSTRATIONS ($1,753,000)

This table shows actual appropriated fund requirements for fiscal year 1959 and estimates for 1960 and 1961, with comparative figures, for farm test demonstrations.

	1959 actual	1960 estimate	1961 estimate
Fertilizer	$909,500	$864,000	$1,159,000
Contractual payments	284,667	288,000	346,000
TVA staff and administrative costs	201,024	221,000	248,000
Total expense	1,395,281	1,373,000	1,753,000
Less farmer payments for fertilizer (nonpower proceeds)	522,042	532,000	736,000
Net expense (appropriated funds)	873,239	841,000	1,017,000
Participating States:			
Valley	7	7	7
Nonvalley	23	24	25
Total	30	31	32
Participating farms:			
Valley counties	2,044	2,015	2,030
Nonvalley counties and States	1,508	1,491	1,632
Total	3,552	3,506	3,662
Fertilizer—Tons of material: [1]			
Calcium metaphosphate	4,208	3,627	3,336
Concentrated superphosphate	546	842	2,073
Diammonium phosphate	3,710	2,819	3,282
Leached zone fertilizer	166	1,000	1,886
Ammonium phosphate nitrate	3,666	3,000	5,000
Liquid fertilizers	88	240	715
Ammonium nitrate sulfate		1,200	1,500

[1] In addition, small quantities of pilot-plant materials are distributed.

TVA, the land-grant colleges, and farm families have worked together since 1935 in a cooperative national test-demonstration program, the major objectives of which are (1) to introduce TVA's experimental fertilizers to farmers for testing and demonstration of their use on a wide variety of soils and under various climatic conditions; (2) to obtain information on the use of such fertilizers under practical farm conditions; (3) to demonstrate the place of fertilizer in whole farming systems and land-use adjustments; and (4) to promote agricultural development in the Tennessee Valley through improved use

of fertilizers and other resources available to farmers in the operation of their farms. Experience on valley test-demonstration farms is being used to help identify important agricultural problems facing farmers of the region and in suggesting ways to meet these problems.

Farm test-demonstrations comprise an important part of the TVA fertilizer program. They bridge the gap between the testing of new or improved fertilizers under controlled conditions in laboratories or on field plots and the widespread introduction and sale of fertilizers to farmers through distributor demonstrations.

In test demonstrations, fertilizer use is not regarded as an isolated factor in a farm operation. Special attention is given to developing and demonstrating new and improved fertilization practices in combination with other advanced farm and home practices. Test-demonstration farms serve as community or regional laboratories for bringing together on a whole farm basis more adequate plant nutrients, the specialized knowledge of research and extension personnel, and the resources of farm families. These farms are used to guide farm families in making farm and home adjustments in accord with changing agricultural policies and conditions. In the Tennessee Valley, farm test demonstrations are important in educational programs for agricultural development and watershed protection and improvement.

Test-demonstration farms are selected to provide wide representation of soil types, farm size, types of farming, financial position of farmers, and suitability of the farm for educational use. In general, farmers participate in the program for a 5-year period. In the valley, test-demonstration work is aimed specifically at important problems, the chief of which is low farm income.

TVA experimental fertilizers are furnished to test-demonstration farmers under a partial payment plan. During 1961 the price to the farmer will average about 63 percent of the plant cost of the material. In addition to the cost of TVA fertilizers, the farmers secure from commercial sources at full cost the other fertilizer and lime needed to supplement the TVA materials in carrying out the adjustments planned for their farms.

Supervision and technical guidance in planning and conducting the program, including such matters as selecting and planning farms, are provided through the agricultural extension services of the State land-grant colleges, with part of the cost being financed by TVA. During 1961 it is estimated that the cooperating institutions will pay $1,061,000 of the cost of field planning and supervision and the TVA $346,000.

AGRICULTURAL DEVELOPMENT PROJECTS ($101,000)

The estimate for agricultural development projects for 1961 is $101,000. This estimate covers a small group of related activities designed to provide current data on valley agriculture for program planning uses and to encourage the full development and use of the agricultural resources of the Tennessee Valley consistent with sound conservation practices. TVA cooperates with State and local agencies, with farmer groups, and with farmers in the conduct of these research and demonstration activities. The character of individual projects changes as problems and conditions change. Generally, they relate to the identification of obstacles to better land and related agricultural resource use and to the development and demonstration of ways of preserving and enhancing land resources in the interest of improving the farm economy and of protecting the watershed.

Economic research on valley agriculture, $53,000

This includes general investigations for the identification and preliminary analysis of emerging problems in the valley region's agricultural economy. Current data on the status of valley agriculture and the economic trends affecting it are necessary to plan an effective program of agricultural resource development and watershed protection and of fertilizer tests and demonstrations. TVA performs continuing studies of such trends as population growth, urbanization, industrialization, mechanization, and adoption of technological innovations in agriculture, improvements in marketing facilities, and income growth. These trends reveal basic shifts in the demands upon agriculture, its problems, and its opportunities. These studies are helpful in providing information on (1) the direction and extent to which economic adjustment must be made by valley farm families; (2) the kind of farm enterprises that will produce the highest income consistent with orderly economic adjustments; and (3) the role of

fertilizer use in making production adjustments that are consistent with continued economic and agricultural growth and development of the region. Data obtained from other Federal agencies and from State and local sources is used extensively by TVA in its economic analyses of valley agriculture.

During 1961 continued emphasis will be placed on studies of the use and productivity of farm labor, capital, and land resources. A study will be started in 1961 to determine the implications for valley agriculture of recreation development in the area. Among these are the creation of job opportunities for surplus farm labor and the increase in the local demand for perishable agricultural commodities. To date very little is known about the interrelationship between recreational and agricultural development. This study will provide a basis for the development of policies and programs to exploit the economic potential of the recreation industry. It will also provide information useful in determining what future studies and projects might be undertaken in this field by the land-grant colleges.

Part-time farming research and demonstrations, $21,000

Cooperative projects being undertaken with the land-grant colleges of Kentucky and North Carolina will be completed in 1961 to determine the major land-use problems associated with part-time farming, to develop agricultural educational materials and methods applicable to part-time farm families, and to develop and demonstrate farming systems that will conserve and improve soil resources, produce some income, and offer little competition with off-farm employment.

Part-time farming in the region is growing rapidly. A large amount of land in the Tennessee Valley is owned by part-time farmers and rural industrial workers. This land is an important resource for family and regional income. It is important to watershed protection. Because the owners have their interest divided between farm and nonfarmwork, the land resource is often neglected. The part-time farming studies and demonstrations now underway have identified many problems as to nature and extent. The interests of the families are better known. Progress has been made in land-use adjustments. One handicap is the difficulty of reaching the families through conventional educational programs. A survey made in one North Carolina county showed that less than half of the part-time farmers had a sufficient understanding of the work of the extension service to use its facilities and programs.

Economic investigations of irrigation in valley agriculture, $13,000

A cooperative project with the University of Tennessee was initiated in 1959 to determine the costs and benefits of operating supplemental irrigation systems under varying conditions and under various farming practices. This project will be continued through 1961. During the past several years the use of irrigation to supplement rainfall has become increasingly important to the agriculture of the Tennessee River Basin. Earlier research on irrigation has been concerned primarily with physical response of crops to irrigation. Now attention needs to be given to the economic problems which the farmer must face before deciding to make an investment in expensive irrigation equipment. This study will answer questions of economic as well as physical importance in determining the potentials and limitations of irrigation.

Research on commercial farming problems, $14,000

In cooperation with the University of Georgia, TVA is making a study of commercial farming problems to determine what can be done to improve production efficiency. The subject of this research is the low-income, full-time farmer. One way to discover what he might do to improve his situation is to identify the methods that have contributed to the success of farmers of adequate income.

A major agricultural problem of the Tennessee Valley is the low level of farm income, which is the result in part of the lack of efficient production systems on commercial farms. Economic growth and change in the region have greatly altered the demand for agricultural products and cost-price relationships. Technological innovations and improved farming practices have increased the need for more farm capital and managerial knowledge. The study in progress will provide a basis for educational programs to improve these conditions.

Cooperative work with the University of Georgia will be completed in 1963. The results of the study will be made available as early as practicable during the course of the project. They will give a better insight than can now be had

on the nature and extent of adjustments that will be needed in the agriculture of the eastern part of the valley during the next 10 or 15 years.

Watershed Protection and Improvement Program

This table shows the breakdown of actual expense of watershed protection and improvement for 1959 and estimates for 1960 and 1961.

	1959 actual	1960 estimate	1961 estimate
Income	$72,981	$82,000	$86,000
Expenses:			
Tributary watershed projects	352,307	431,000	512,000
Forestry products	614,095	612,000	663,000
Total direct expenses	966,402	1,043,000	1,175,000
Distribution of administrative and general expenses	63,970	70,000	70,000
Total expenses before depreciation	1,030,372	1,113,000	1,245,000
Depreciation on general facilities	7,822	9,000	9,000
Total expenses	1,038,194	1,122,000	1,254,000
Net expense of watershed protection and improvement	965,213	1,040,000	1,168,000

TVA is responsible for the protection and improvement of the watershed of the Tennessee River and the proper use, conservation, and development of the region's natural resources. Growing out of this responsibility is the necessity for protecting from sedimentation a Federal investment in 28 dam and reservoir projects, constructed or acquired at a cost of $800 million.

The problems of watershed protection and improvement in the Tennessee Valley are complex. In the area of 40,000 square miles is a wide variety of soil types, cover conditions, and terrain. Land management practices differ greatly from area to area. Ninety percent of the land is privately owned. Fifty-four percent is in forests. Seven States, 125 counties, and the operators of over 300,000 farms and forests are directly involved in the problems and opportunities of the Tennessee River watershed.

TVA follows these principles in its approach to watershed protection and improvement:

1. Ultimate solutions to soil and water-use problems must be readily applicable to private land without burdensome regulatory measures.
2. The ultimate responsibility for watershed protection and improvement and for conservation and wise use of land resources rests with the owners of the land and with their State and local agencies.
3. The Federal Government should provide State and local agencies, groups, and individuals with basic data, practical solutions, and leadership; and should minimize its direct participation in applying or financing corrective measures for watershed problems.

TVA participates only in those activities it is best suited to perform and which at the time are beyond the capabilities or resources of other agencies or groups. TVA seeks maximum State and local participation and financing. Heavy emphasis is placed on local demonstrations of methods of achieving watershed development that are within the scope of local abilities.

The TVA watershed protection and improvement program is made up of two parts—tributary watershed projects and forestry projects.

Tributary Watershed Projects, ($512,000)

The 1961 estimate for tributary watershed development is $512,000. As in the past, use of funds for specific development projects will depend largely on the degree of State interest and cooperation.

Effective control and proper use of water resources call for the construction and operation of works on major streams and for soil and water programs in small tributary areas. These special area programs increase the effectiveness of basinwide activities in forestry, agriculture, water control, and electric power by achieving local improvement under State leadership and responsibility. TVA's tributary watershed activities help to focus State and local attention on land and water problems that can be solved for the most part by local action.

TVA secures and makes available basic research information on soil and water relationships and demonstrates in a few selected small watersheds the results of a comprehensive approach to small watershed development under State leadership and coordination.

The valley States are invited to explore with TVA the solution of small watershed problems through State and local development agencies. Engineering structures for water control and regulation are included in development plans only when such structures offer the most feasible solution to local water-related problems and after other solutions are proved not suitable. TVA assistance in engineering improvements as part of these cooperative watershed projects may be considered in such situations, provided the improvements demonstrate an approach to local water problems that can be applied by the States to other watersheds.

Basic investigations, $190,000

Basic investigations are conducted to provide a better understanding of the effects of land cover on streamflow and water supply. This is essential to the development phase of the watershed program to the valley States in their water-use studies.

Waynesville single-practice project.—On a group of small watersheds near Waynesville, N.C., TVA and North Carolina State College have been studying the effects of agricultural crops on the water and soil. The results of this study will make it possible to predict the amount of runoff and erosion under a variety of soil, plant, and climatic conditions encountered in the mountainous eastern portion of the valley. A unique feature of the Waynesville project is the highly precise accounting for all the water that falls and what happens to it after it reaches the ground.

This project is scheduled for completion in fiscal year 1964.

Parker Branch pilot watershed.—This watershed research project in western North Carolina is now in its final stage, the evaluation period. It will be completed in 1962.

This research project is conducted jointly with North Carolina State College. It is the only project in the country where engineers are accurately measuring the effects of most economic land use on a stream and its watershed. During 1961, measurements of the hydrologic and economic effects resulting from major land-use changes will be continued. Farm management assistance to participating farmers will continue, and limited amounts of fertilizer will be used as an incentive to encourage farmer cooperation.

General investigations.—Two small watersheds are used in a study of the effects of forest management on sedimentation, streamflow, ground water, and other hydrologic factors. Inasmuch as half the Tennessee Valley is in forest cover, it is imperative that better information be available on how forest use influences the behavior of water in forest soils.

General economic studies of small watershed development will continue on a limited scale, and benchmark studies of potential watershed development will be made.

Chestuee watershed, $53,000

The objective of the Chestuee project is to demonstrate methods by which State and local organizations can deal with local watershed problems and the development of resources. This project in east Tennessee is conducted in close cooperation with the University of Tennessee, with county and town governments in the watershed area, and with community organizations.

The Chestuee project will be concluded in fiscal year 1962. The remaining years will be used to study and demonstrate ways of adapting the use of land in the flood plain to stream overflow problems that cannot be solved economically by engineering measures. Selected farms will be used to demonstrate the kinds of changes in farming practices that can be made so that farmers can live with floods that cannot reasonably be prevented.

Two hundred and fifty thousand seedlings will be made available under a partial payment plan for reforestation, and timber harvesting and woodland management demonstrations will be conducted.

Basic changes in the watershed and adjacent area are pronounced. Improved permanent pasture has more than doubled in 10 years. Countywide forest fire protection is now available in the three counties involved. About 3½ million trees have been planted. Sediment discharged into streams has been reduced by almost half. Farmers and others in the area have begun to clear Chestuee

Creek of debris to help reduce high-water stages. Community organizations have been strengthened. A multicounty health unit has been organized. Leading farmers are being encouraged to promote the adoption of sound agricultural practices by assisting their neighbors to establish some new farm enterprises, such as growing alfalfa or starting a permanent pasture. This spread of improved agricultural practices is accomplished through the efforts of landowners with the technical assistance of TVA and the university.

Beech River watershed, $157,000

This estimate provides for continuation of a watershed demonstration project in west Tennessee. In the Beech River watershed the State of Tennessee is providing the leadership needed to marshal the efforts of State and local agencies and groups toward orderly watershed protection and improvement where large areas of land are unused and unproductive because of flooding, erosion, and sedimentation. TVA assists by providing scientific data, some fertilizer and forest seedlings, supervisory aid, and general advisory services. In 1961, 50 test-demonstration farms in Beech River will receive limited amounts of fertilizer. TVA and the State of Tennessee will make available to landowners 2 million seedlings for reforestation. The landowners will pay a major part of the cost of the seedlings. Meetings and demonstrations will develop interest in forest fire prevention, soil erosion control, forest management, and better utilization of watershed forests. Technical assistance also will be provided in developing local industry and recreational facilities.

During 1961 emphasis will be placed on the development of a comprehensive plan for integrated development of all the resources of the watershed under which the local people, with State leadership, can select and act upon the most feasible alternative solutions to watershed problems. This approach provides for minimum Federal participation. Basic information on current watershed problems and possible solutions will be assembled. These problems will be discussed with the people of the area, who will then select those to be attacked, the order in which they will be taken up, and the means they will use to solve them. For example, the local people would have to decide for specific situations whether erosion should be checked by reforestation, by permanent pasture, or by some other means. They would have to decide whether the wooded flood plain should be converted to agricultural use, improved for timber production, or treated in some other way.

This is a new approach to tributary watershed development. It is expected that a method will evolve by which State and local people can develop a sound long-range program for what, in their judgment, is the best development and use of the resources of a watershed. This will have application in other watersheds of the Nation. This approach is being tried in Beech River because much of the basic information is already available and preparatory work is well advanced. Agricultural and forestry improvements in the watershed have reached the point where definite plans for integrated development of all resources can be prepared.

Most of the possible improvement measures in the Beech River watershed can be carried out by State and local agencies under their existing powers. The people of the two counties in the watershed, expressing great interest in a development program for the area, have organized a local watershed committee which is planning specific measures to be undertaken. The State of Tennessee has taken leadership in the development of the Beech River watershed as a demonstration, and the Governor has designated a State representative to guide and coordinate the work of the participating groups, including TVA. This project is providing the experience needed to enable State and local groups to develop plans for similar programs in other watersheds.

An engineering study will be made to determine the feasibility of water control structures.

Yellow Creek watershed, $99,000

During 1959 TVA and Mississippi initiated a cooperative tributary watershed demonstration project in the Yellow Creek watershed in the northeast corner of the State. Development work is coordinated by the Yellow Creek Watershed Authority, an agency of the State of Mississippi. Background studies made during 1959 and 1960 will provide benchmark data and aid in identifying major watershed resource problems. Sites for hydrologic field installation will be selected, and studies of the watershed hydrology will begin. Forest develop-

ment and protection activities will be undertaken, and some farm test-demonstration work will begin.

In 1961 the project will be well underway. Test-demonstration farms, as determined by benchmark surveys and by the program approved by the Yellow Creek Watershed Authority, will be established. Studies of flood and drainage problems will be made. Landowners will plant about 1 million tree seedlings which TVA will supply to the State on a partial pay basis. Timber stand improvement will be promoted, and the Mississippi Forestry Commission will be assisted in conducting a fire prevention program.

Other watersheds, $13,000

Negotiations are underway for initiating a watershed project in Virginia or Alabama. TVA assistance will depend on the willingness of the State to assume leadership and responsibility for planning and development.

FORESTRY PROJECTS ($663,000)

The estimate for forestry projects covers the compilation and analysis of basic information about the forest resource; studies and demonstrations in forest protection and forest management; research and demonstrations on the best use of forest products; assistance in reforestation (including seedling production); and research and demonstrations on the use of chemical fertilizers in forest development.

These activities are carried on in cooperation with the forest landowners, with the seven valley State divisions of forestry, extension service, and agricultural experiment stations, and with forest products processors and dealers and forest industry associations. The active cooperation and support of public conservation associations, councils, and committees is obtained. Close collaboration is effected with the U.S. Forest Service, Soil Conservation Service field personnel, and the Bureau of the Census.

Forestry projects have as their objective the improvement of valley forest lands to the point where they will make the maximum contribution to soil and water stabilization and to the economy of the region and Nation through sustained production of high-grade forest products.

The valley forests comprise one of the Nation's great resources as well as a significant regional asset. They cover half the valley and are in over 245,000 different ownerships. The output of these forests is currently valued at $450 million a year. Properly developed, managed, and used they can contribute, within 25 to 30 years at current rates of progress, over $1 billion a year to the national production.

The results of many of the forestry activities have significance and use far beyond the valley itself. While they are carried on under valley conditions, most of them represent pioneering in the respective fields, and findings quite often have application throughout the country. Indicative of this are the wide distribution of requests for TVA publications reporting forestry work. During fiscal year 1959 about 10,000 copies of TVA forestry publications were sent on request to 45 States, the District of Columbia, and 18 foreign countries.

Forestry projects are not conducted in all parts of the valley with the same intensity. Instead, the approach is on an area basis. The areas selected are those of greatest need and highest local interest. The area approach is useful in three ways: (1) It provides tested ideas that can be applied throughout the valley and in many parts of the Nation; (2) it serves as a demonstration area to adjacent sections; and (3) the selected area is directly benefited.

In addition to the area approach, other forestry projects have valleywide significance and scope; for example, collection and analysis of data on the forest resource as a whole and assistance in reforestation.

Analysis of valley forests, $164,000

The purpose of this activity is to determine by counties, watersheds, or other logical units timber volume and quality and the rate at which it is being used and renewed. It also involves the compilation and analysis of basic data on forest soils and forest types to serve as a basis for recommendation of forest management practices that will offer the highest economic returns consistent with the maintenance of the best watershed protection values of woodlands.

The 1961 program provides for a comprehensive review of all phases of valley forestry. Periodic examination of the forestry situation has proved effective in keeping the TVA program alined with current regional problems and oppor-

tunities. Prior reviews were made when TVA was established, and in 1938, 1950, 1953, and 1956. These reviews identified problems needing attention at the time and provided information on the progress of forest development. Through the years the forestry picture has changed greatly. The 1933 problem was reforestation and erosion control. The next major development phase was forest protection. Since 1945, the major problem has been to encourage sound management of forest lands. The 1961 survey will show where primary emphasis should be put in the years immediately following.

During fiscal year 1961 TVA will inventory the forests of 4 valley counties, bringing to 80 the number of counties surveyed. In addition, 3 counties will be resurveyed. The forest areas of 7 tributary watersheds have been inventoried and 2 resurveyed. An effort is being made to complete the forest inventory of the 125 valley counties by the end of fiscal year 1963. A study of the utilization of valley hardwoods by industry will be made. Such industrial surveys show the rate and character of timber use.

During 1960 a project was initiated to study and classify the forest lands in the drainage areas of the valley according to their capacity to absorb and detain water. This study will be completed in 1961. Those land types with best infiltration characteristics hold the most promise for contributing to the regional economy and to watershed protection. Knowing what these forest land types are will help to determine the nature and intensity of forest improvement work by State agencies and will permit the direction of effort, to the areas of greatest need that have the best potential for improvement.

A sharp increase in strip mining in the valley is contributing to erosion and water problems. A survey and analysis of strip-mining operations is underway to determine their extent, damage to watersheds, and possible preventive or corrective measures.

Forest protection, $23,000

TVA takes part in limited cooperative research and demonstration projects aimed at reducing the risks of timber production. Natural forest enemies are a threat to both the basic resource and to watershed protection. TVA helps to get facts, establish adequate standards, evaluate progress, and encourage State and local agencies, woodland owners, and timber operators to fight major threats to productive forests. Application of specific preventive and corrective measures is the responsibility of the States, counties, and landowners.

Primary emphasis in 1961 will again be on woodland grazing, which seriously damages some 15 percent of the valley forest area. The States will be helped to determine why landowners graze their forests so that corrective measures may be applied with greater chance of success.

Limited work on fire prevention and protection will continue. The Valley States will be helped to develop and test a method for determining fire causes over large areas. The first areas to be considered will be in north Alabama.

Forest management, $148,000

The long-term objective of forest management activities is to determine the methods by which woodlands may be brought to maximum productivity while affording the best watershed protection. Under present management methods, valley forests are yielding about one-third of their economic potential and are providing inadequate watershed protection. To correct this, the following specific goals are sought:

1. Conversion of low-value hardwoods to better quality hardwoods and pine.
2. Keeping low-value hardwoods from taking over pine stands.
3. Development of more profitable methods of thinning and pruning pine stands.
4. Promotion of better management practices among landowners.

Field remeasurements will be made and reports will be prepared on current forest management research projects, including pine thinning tests, natural pine regeneration tests, and pine-hardwood plantation growth and yield. Intensive management and reforestation demonstration programs will be conducted on a selected county basis. Throughout the valley emphasis will be placed on encouraging the annual growth of 300 board feet of good timber per acre.

The results of forest management investigations are taken to the forest landowners primarily through demonstrations conducted in cooperation with public agencies. During the year 16 continuing demonstrations of small woodland management by landowners will be added to those already established. One-

time demonstrations of timber harvesting and thinning and similar methods that can be followed by landowners will be held as the opportunity presents itself. A summary of TVA's experience in helping the owners of large forest properties to set up management demonstrations will be published for use by public agencies and private forestry consultants in promoting good management practices. Attention will also be directed to locating forest landowners who produce an average yield of 300 board feet of high-quality timber per acre per year. This is three times the valley average. These landowners will be encouraged to serve in local demonstrations of the achievement of a tangible forest management goal.

Long-term demonstrations of municipal watershed forest management will continue.

Forest products utilization, $132,000

The purpose of this activity is to help the forest industries of the valley improve their harvesting and processing methods, thus reducing damage to the watershed and improving the forest resource. The kinds of trees they cut, the rate of cutting, and the standards they use largely determine the future economic value of the forest and its ability to hold water and to protect the watershed from erosion.

Forest products utilization activities include factfinding, tests, and demonstrations. They are carried on in close cooperation with major forest industries, sawmill equipment manufacturers, trade associations, local development groups, and State forestry agencies. The contributions of these cooperators, financial and otherwise, greatly exceed those of TVA.

During 1961 research will be undertaken to establish the relative values of hardwood trees for pulpwood and other products, such as lumber and crossties. Many sawmill operators are harvesting trees that are below economic sawlog trees. At the same time, pulpwood producers may be utilizing sawlog-sized trees in their operations that should go to the sawmill. Accurate information about the relative values of hardwood trees would enable the timber owner, the pulpwood producer, and the sawmill operator to harvest and market trees for their best economic return. A related project is a study of harvesting methods to remove undesirable hardwoods for use as pulpwood.

Research will be conducted on improved logging methods in the interest of greater efficiency and better watershed protection.

Information on improved utilization and processing methods is spread through conferences and meetings of timber operators. During 1961 TVA will participate with State forest agencies and forest industry representatives in 30 meetings and conferences of timber operators to demonstrate harvesting and processing methods. Another device for presenting information on efficient tree utilization and milling practices is the demonstration sawmill. Selected commercial sawmills serve as demonstration mills, showing what can be accomplished by the average sawmill operator to get the highest economic return from the timber he saws, thus making it possible for him to pay better stumpage prices, which will in turn make timber management by private landowners more attractive.

In cooperation with nine southern colleges and with the U.S. Forest Service experiment stations, TVA takes part in regional wood seasoning and preservation research and demonstrations.

Reforestation, $166,000

TVA's reforestation work is of three principal types. The first activity is cooperative research directed at finding or developing improved trees and of propagating them as seed sources so that future reforestation programs may be carried out with seedlings of superior growth and quality potential.

The second activity is seedling production. During 1961 TVA will produce 67 million seedlings at two forest nurseries, of which 13.8 million will be used for valley reforestation. Of the remaining seedlings, 2.2 million will be used in tributary watershed projects and 51 million will be grown for other public agencies under reimbursable services contracts. TVA receives partial reimbursement for the seedlings produced for valley reforestation, amounting to about three-fourths of the cost of production. They are distributed by State forestry agencies. The States handle landowner orders, deliver the seedlings, and collect the same charges as for State-produced trees. The full amount collected is paid to TVA. Revenue from this source in 1961 is estimated at $65,000.

In addition to conducting research and producing seedlings, TVA helps State and local agencies and forest industries and individuals promote reforestation.

A long-term objective is to secure the reforestation of 2,702,000 acres of potential forest land in the valley. This includes 657,000 acres of actively eroding land, 774,000 acres more suited to timber production than to present uses, and 1,271,000 acres of cutover or burned over forest land which will not reseed naturally to desirable species. The total job requires the full cooperation of State and Federal agencies.

Forest fertilizer tests, $30,000

The purpose of forest fertilization tests is to determine the optimum amount, type, and method of applying fertilizers that are economically justified in the production of timber products in the Tennessee Valley. Little is known about the agronomic aspects of forest fertilizer use or about its economic feasibility because little systematic research has been conducted. The principal areas in which forest fertilizer investigations will be conducted in 1961 are on seed trees, tree seedling production, establishment of new forest stands, timber growth, and insect and disease control.

General Service Activities

GENERAL FACILITIES

General facilities include the cost of such items as office furniture and equipment, transportation facilities, plant additions and improvements on general-use reservations, and construction equipment not assigned to specific projects. These facilities are used in all TVA activities.

This table shows obligations for general facilities.

	1959 actual	1960 estimate	1961 estimate
1. General construction equipment and inventories	$404,572	$55,000	−$26,000
2. Office facilities and equipment	−24,481	1,277,000	−40,000
3. Transportation facilities and equipment	75,758	306,000	229,000
4. Other general facilities and equipment	216,125	12,809	9,000
Total	671,974	1,650,809	172,000

1. General construction equipment and inventories, −$26,000

This category reflects changes in inventories maintained for general construction purposes; changes in the net investment in a pool of trucks, tractors, dirt-moving equipment, and other machinery which is charged originally to major construction projects and is shifted from project to project with changing construction needs; and plant and equipment held for future construction use.

The estimate for 1961 includes (1) $20,000 for purchase of new construction equipment for general use; (2) −$33,000 for changes in inventories resulting from transfers of miscellaneous construction materials between general inventory accounts and construction projects, with offsetting amounts in the accounts for construction of various projects; (3) $8,000 for plant held for future use; and (4) −$21,000 for equipment transfers between accounts for equipment held for future use and construction projects, with offsetting amounts in the accounts for construction of various projects.

2. Office facilities and equipment, −$40,000.

This table shows obligations for office facilities and equipment.

	1959 actual	1960 estimate	1961 estimate
Office equipment	$157,534	$130,000	$325,000
Electronic computing equipment	47,777	1,335,000	50,000
Building facilities and equipment	2,500	40,000	40,000
Equipment for office shops	16,915	7,000	40,000
Miscellaneous facilities		5,000	5,000
Subtotal	224,726	1,517,000	460,000
Less depreciation [1] on facilities and equipment in service	249,207	240,000	500,000
Total	−24,481	1,277,000	−40,000

[1] See note on p. 822.

Estimates for purchases during 1961 of office facilities and equipment total $460,000. This total is more than offset by a credit estimate of $500,000 for depreciation on facilities and equipment in service, leaving a net credit of $40,000, which is applied toward the total budget requirements for general facilities.

The estimate of $325,000 for office equipment provides for replacing wornout or obsolete equipment such as typewriters, adding machines, bookkeeping machines, and calculators; and for additional new items of equipment such as drafting tables, file and storage cabinets, desks, and chairs. The estimate takes fully into consideration furniture and equipment released from completed construction projects.

The estimate of $50,000 for electronic computing equipment includes $20,000 for purchase of 525 reels of magnetic tapes for use with the IBM 704 electronic computer, $10,000 for 45 additional machine control panels, and $20,000 for computing center general-use equipment such as keypunches, verifiers, sorters, and collators.

The estimate of $40,000 for building facilities and equipment covers miscellaneous building equipment additions and replacements such as stokers and boilers, air-conditioning equipment, and fire protection devices.

An estimated $40,000 will be required for equipment such as reproduction machines, motors, ventilating fans, portable air-conditioning units, shelving, etc., much of which is for replacement purposes. The estimate of $5,000 for miscellaneous facilities covers miscellaneous replacements and minor additions to the telephone system at Wilson Dam.

3. Transportation facilities and equipment, $229,000

This table shows obligations for transportation facilities and equipment.

	1959 actual	1960 estimate	1961 estimate
Passenger sedans	$230,357	$300,000	$300,000
Trucks and heavy mobile equipment	605,131	278,000	740,000
Aircraft	13,822		
Transportation garage at Knoxville, Tenn.	18,360	548,000	
Shop and special service equipment	76,988	55,000	64,000
Subtotal	944,658	1,181,000	1,104,000
Less depreciation [1] on facilities and equipment in service	868,900	875,000	875,000
Total	75,758	306,000	229,000

[1] See note on p. 822.

The estimate of $300,000 for passenger sedans provides for the purchase of 200 vehicles to replace an equal number scheduled for retirement. By 1961 each sedan to be retired will have accumulated 60,000–75,000 miles and will have reached the point where replacement is more economical than the cost of repairs required for continued use of the vehicle. All 200 sedans to be replaced will be within the governmentwide retirement standards, which call for replacement at 60,000 miles or at 6 years of age.

The estimate of $740,000 for trucks and heavy mobile equipment covers the purchase for general use in operations, maintenance, and construction activities of 76 light trucks, 12 medium trucks, 12 heavy trucks, 24 line construction trucks, 6 trailers, and 22 construction machines to replace equipment scheduled to be retired. By 1961 the 152 units to be replaced will have accumulated 60,000–80,000 miles and will be 8 to 18 years old. All scheduled replacements are in accord with applicable governmentwide retirement standards.

The estimate of $64,000 for shop and special service equipment provides $15,000 for miscellaneous equipment items needed in transportation shops, such as lathes, grinders, drill presses, and alinement machines; and $49,000 to cover the cost of installing special equipment on trucks and other vehicles.

4. Other general facilities and equipment, $9,000

An estimate of $79,000 provides for minor improvements on the Wilson Reservation, engineering equipment, shop equipment, and other general-use equip-

ment items required in program activities. This estimate is partly offset by a credit of $70,000 for depreciation[2] on facilities in service, leaving net budget requirements of $9,000 for 1961.

Reimbursable Services

The 1961 estimate for reimbursable services is $4,207,000. These services are furnished at the request and expense of other agencies and in the case of Federal agencies are based on findings that the use of TVA's facilities and technical staffs results in overall savings to the Government. Services for other Federal agencies are performed under authority of section 601 of the Economy Act of 1932.

Of the $4,207,000 estimate, $1,915,000 is for continuation of construction of a bridge over Fort Loudoun Dam for which reimbursement is received from the Public Roads Administration and the State of Tennessee in accord with Public Law 562. Also included is $1,048,000 for reimbursable mapping services—$970,000 for the Department of the Army, $65,000 for the U.S. Geological Survey, and $13,000 for other agencies. An estimate of $169,000 covers services for the Department of Defense in connection with keeping the Muscle Shoals Phosphate Development Works in standby status. Reimbursement from power distributors for technical advisory services in connection with system operations is estimated at $188,000. The balance of $887,000 includes loans of personnel, services for contractors and other agencies, and miscellaneous recoveries of TVA expenditures.

Maintenance of Bridges Financed by Others on TVA Dams

Pursuant to Public Law No. 562, 79th Congress, three bridges financed by the Public Roads Administration have been constructed upon and across TVA's Kentucky, Chickamauga, and Watts Bar Dams. A fourth bridge, upon and across Fort Loudoun Dam, is scheduled for completion during the latter part of fiscal year 1961. The public law provides that bridges so constructed become part of the principal dam structures with responsibility for maintenance of the bridges being assigned to the agency having custody of the dams. The public law further provides that expenditures in connection with the maintenance of such bridges be kept separate and apart with no portion thereof being charged or allocated to other programs of the agency. An estimate of $8,000 provides for maintenance of the bridges in 1961.

Schedule B–4.—*Administrative and general expenses (for fiscal years ending June 30, 1959, 1960, and 1961)*

	1959 actual	1960 estimate	1961 estimate
Board of directors	$119,382	$127,000	$128,000
Office of the general manager	103,549	105,000	105,000
Budget staff	119,635	120,000	120,000
Administrative appraisal staff	10,774	31,000	31,000
Government relations and economics staff	109,939	119,000	125,000
Washington office	48,427	51,000	51,000
Information office (including technical library service)	281,737	348,000	334,000
Division of personnel	871,896	908,000	920,000
Division of finance	1,722,890	1,793,000	1,803,000
Division of law	362,218	381,000	385,000
Division of property and supply	536,934	569,000	579,000
Operation of medical and safety service units	548,256	564,000	570,000
Other administrative and general expenses	60,495	66,000	66,000
Total administrative and general expenses	4,896,132	5,182,000	5,217,000

[2] Note.—In the interest of economy and efficiency, TVA general facilities and equipment are "pooled" and made available to programs and projects on a rental basis. The rental rates include appropriate provision for depreciation; therefore, budget requirements for each program and project include charges for depreciation. Since depreciation is a type of expense not requiring current outlay of funds, the total of the depreciation charges must be deducted to avoid overstatement of fund requirements. The credits estimated for fiscal year 1961 of $500,000 for office facilities and equipment, $875,000 for transportation facilities and equipment, and $70,000 for other general facilities and equipment offset total charges included in program and project estimates as depreciation on TVA "pooled" general facilities.

Distribution of administrative and general expenses

	1959 actual		1960 estimate		1961 estimate	
	Appropriations	Proceeds	Appropriations	Proceeds	Appropriations	Proceeds
Navigation, flood control, and power program:						
Assets	$317,307	$1,560,867	$191,000	$1,858,000	$257,000	$1,812,000
Expenses:						
Navigation operations	15,452		16,000		16,000	
Flood control operations	18,563		20,000		20,000	
Power operations		2,032,181		2,100,000		2,100,000
Multipurpose reservoir operations	181,444	120,963	192,000	128,000	192,000	128,000
Topographic mapping	12,128		12,000		12,000	
Total expenses	227,587	2,153,144	240,000	2,228,000	240,000	2,228,000
Fertilizer, agricultural, and munitions program:						
Assets	34,309		35,000		50,000	
Expense of fertilizer, agricultural, and munitions development	111,472	351,274	120,000	375,000	120,000	375,000
Watershed protection and improvement program: Expense of watershed protection and improvement	63,970		70,000		70,000	
General service activities:						
Assets	20,110		25,000		25,000	
Expense of reimbursable services		56,092		40,000		40,000
Total distribution by funds	774,755	4,121,377	681,000	4,501,000	762,000	4,455,000
Total distribution	4,896,132		5,182,000		5,217,000	

ADMINISTRATIVE AND GENERAL EXPENSES (SCHEDULE B–4)

The 1961 estimate for administrative and general expenses is $5,217,000. Of this amount, about 83 percent provides for those personnel, fiscal, legal, and other administrative services which are performed on a centralized basis in support of all program activities. The remaining 17 percent covers the cost of agencywide executive direction and management. Because these costs are incurred in the interest of all program work, they are distributed to projects and programs primarily on a direction-of-effort basis. Distribution of administrative and general expenses is shown in the financial statements throughout the budget as indirect expense within the total cost of each major program. Schedule B–4 (p. 113) summarizes this distribution and shows the origin of administrative and general expenses by organizational units.

In relation to the total TVA program, administrative and general expenses are of two types. Some are of a relatively fixed nature since they do not increase or decrease with fluctuations in overall TVA activity. These are the expenses of the principal management offices and of the basic staff work fundamental to TVA policies and procedures in personnel administration, fiscal management, and other managerial fields. Other expenses are determined to a considerable degree by the level of total program, diversity of activity within the total program, and dispersion of work location. However, these do not change in direct proportion to total expenditures, nor do they vary in precise relation to changes in program content. Such expenses are primarily the costs of supplying administrative services to the TVA divisions performing program work.

Particular attention has been directed to the latter type of expenses in developing the 1961 estimate for administrative and general expenses. In an effort to hold the line on overhead costs, all participating divisions have planned to the greatest extent possible for handling required workload in 1961 without increased expense over 1960. Careful utilization of manpower has been emphasized, taking into account realinement of duties and improved procedures to achieve expeditious flow of work. Expanded use of the electronic computer system for data processing is given high priority; possible additional uses of conventional punchcard equipment is likewise receiving continued study. Estimates for all objects of expenditure have been thoroughly reviewed. As a consequence, the 1961 total estimate has been held to $5,217,000, compared to $5,182,000 in 1960. The increase of $35,000 represents a change of about seventenths of 1 percent and provides for small adjustments in the cost of providing

various administrative services. Few changes in staffing are provided; average employment is estimated to be 516 in 1961, compared to 513 in 1960.

Referring to the detailed estimates in schedule B–4, amounts shown for the Board of Directors and the Office of the General Manager cover the salaries of top management officials and of their secretarial assistants. Also included are the cost of their travel, office space, and related expenses. The 1961 estimate for the Board of Directors provides $1,000 to cover costs incident to reception of officials of foreign governments who request visits to TVA or for whom visits to TVA are scheduled by the Department of State.

Organizationally part of the General Manager's Office are five small units having specialized functions directly serving central management as well as operating divisions. The Budget Staff is the focal point of overall program planning, administrative control of funds, and review of work accomplishments in relation to projected plans and cost estimates. The Administrative Appraisal Staff assists the General Manager in reviewing agencywide application of administrative policies and procedures and in evaluating the extent to which such administrative arrangements are making maximum contribution to the conduct of program activities. The Washington office is the point of contact between TVA and the Executive Office of the President, the Congress, and Federal agencies with headquarters in the Nation's Capital. The 1961 estimates for these three units are the same as in 1960.

The Government Relations and Economics Staff performs studies necessary to supply the Board of Directors and the General Manager with facts about regional conditions and economic trends. In addition, this group provides assistance on intergovernmental relationships involved in TVA's work with State and local agencies. With the availability of 1960 census data, it will be important to appraise current economic conditions of the area and evaluate trends over the last decade. Basic to these analyses is the conversion of State and county data to watershed and regional bases. Provision is made for this expanded statistical workload in the 1961 estimate of the Government Relations and Economics Staff.

The Information Office has three principal functions. It supplies information about TVA activities to answer requests from the public, the press, Members of Congress, and others; prepares TVA's annual report to the Congress as required by law; advises the Board and General Manager on matters of publications, reports, and relations with the public. A second major function is provision of technical library services to professional, scientific, and administrative personnel throughout TVA. A central library in Knoxville contains a basic collection of books, periodicals, and Government publications. A library center in Chattanooga serves the special needs of operating divisions in that city. Thirdly, the Information Office arranges schedules for and works with persons who request visits to TVA in order to see its installations and study its program. Such visits currently range from 200 to 500 per month; many are arranged at the request of other Federal agencies. In 1961 the workload of the Information Office as a whole is expected to be at about the going level except in the Chattanooga library, where services to the power program are growing substantially. Provision is made for meeting this need and for purchasing technical references in nuclear and electronic fields. A general motion picture about the TVA program is scheduled for production in 1960. To further improve presently limited visual informational media, it is planned to produce a single program film in 1961. This will be a shorter, less-expensive movie; hence, the 1961 estimate for the Information Office has been reduced in relation to 1960.

The Division of Personnel has responsibility for all matters affecting the employees which TVA needs to carry out its program work. Total employment is about 14,500. Some 6,500 employees are concentrated at three locations—Knoxville and Chattanooga, Tenn., and Wilson Dam, Ala. About 5,500 work at 7 major steamplants. The remaining 2,500 are located at widely dispersed points in groups varying from 10 or so to several hundred. By types of employment there are about 6,000 white-collar employees; 5,000 blue-collar workers on annual rates; and 3,500 hourly craftsmen and laborers. In the first group are employees of widely diverse competence as required by the variety of TVA's program activities. There must be engineers of many specialties, research and technical personnel, agriculturists, foresters, attorneys, accountants, draftsmen, doctors, and so on. The second group is made up of craftsmen and operating and maintenance employees working mostly in the chemical plant and in electric generating stations. Hourly construction workers make up the third group. In relation to these staffing requirements, the Division of Personnel performs the wide range of functions commonly recognized as public personnel administration. In addition,

it provides leadership in TVA's employee-management cooperative program, carries primary responsibility for relations with organized labor groups, and helps operating supervisors solve employee relations problems arising in the work situation. The 1961 estimate for the Division of Personnel includes several adjustments over 1960. Staff of the Wilson Dam area office will be augmented by one position to improve services in line with operating needs in that locality; increased emphasis will be placed on use of computer and other punchcard equipment for data processing; revision of certain employee informational materials is scheduled.

The Division of Finance has full responsibility for all financial, accounting, and fiscal matters of TVA. Dollarwise, this responsibility relates to total program expenditures in the order of $370 million and total receipts of around $290 million in 1961.

Auditing and disbursing work will require about 45 percent of the 1961 estimate for the Division of Finance. The audit process examines all financial transactions, including revenues, payrolls, employee leave and travel, and purchases of materials, supplies, and equipment. Field auditors make on-site examinations of accounting activities at construction and operating locations throughout the valley. Reports are prepared covering the audit work at each location. In its Audit Report of TVA for fiscal year 1959 the General Accounting Office stated that "these reports, together with the supporting audit working papers, are of considerable use to us in conducting our audit. The internal audit organization is very effective and well accepted by management." The disbursing function is estimated to require issuance of 850,000 checks and 275,000 U.S. savings bonds to employees purchasing them through payroll deductions. Good progress has been made in conversion of payrolling and leave accounting to the IBM 704 computer system. All white-collar payrolls were fully converted in fiscal year 1959; annual blue-collar payrolls were converted by the end of October; finally, hourly construction payrolls will be converted to computer processing. Actual experience with the electronic equipment is helping to identify byproduct benefits which can be derived from master records used for payroll purposes. Voluminous detailed data can be analyzed and summarized with relatively short computer time to secure information for routine and special reports.

Plant accounting is another large segment of work of the Division of Finance requiring about 30 percent of its 1961 estimate. When facilities are completed and placed in service, final cost reports are prepared and costs converted to unit records in accordance with accounting requirements of the Federal Power Commission. Of a continuing nature is work necessary to maintain plant unit records and related accumulated depreciation records. This increases with the total value of plant in service and age of facilities.

The remainder of the estimate for the Division of Finance provides for development of accounting procedures, maintenance of the basic framework of accounts, and preparation of official financial statements and related reports. Also included is accounting, vouchering, billing, and payroll work performed for program organizations which can be most economically served on a centralized basis. Small adjustments for the various types of fiscal services make up the $10,000 increase in the 1961 estimate over 1960.

The Division of Law serves all offices and divisions with regard to legal matters involved in carrying on the diverse activities of TVA. Legal services include defense of all suits brought against TVA and filing and prosecution of suits by TVA when necessary to protect its interests. Other legal services are preparation of contracts, deeds, bills of sale, leases, and other legal documents; and protection of TVA's inventions by the prosecution of patent applications and otherwise. The legal staff reviews both Federal and State legislation as it relates to TVA activities. In 1961 staffing for legal services is estimated at the 1960 component of attorneys and secretarial assistance, with provision being made for workload at about the current year level.

The Division of Property and Supply provides leadership and assistance to all operating divisions in the use of TVA's central electronic computer facilities. It helps identify promising uses which may be made of the equipment; contributes to feasibility studies of specific applications; and assists in preparing machine programs. Another function of this division is assistance in the wide variety of questions affecting most efficient arrangements for office operations—selection and utilization of office space; placement of furniture and equipment; and use of business machines for particular purposes. Records management

standards and procedures are developed and administered by the Division of Property and Supply. It operates mail rooms in Knoxville, Chattanooga, and Wilson Dam for receipt, dispatch, and distribution of mail and provides messenger service for distribution of interoffice mail. Provision for computer-related work is the primary purpose for the increase in the 1961 estimate compared to 1960.

Operation of medical and safety service units has three major objectives: protection of employees from service-connected injury and health damage; protection of expensive equipment to minimize replacement costs due to accidents; and avoidance, to the greatest extent possible, of employee compensation costs arising from real or alleged injuries and health impairment. Many of TVA's activities involve complex occupational health hazards. Most construction work is done under high-risk conditions where the probability of accidents and injuries is great. Hazardous conditions also exist in operating chemical facilities and electric generating stations and in maintenance of power lines and transmission facilities. Work in shops, garages, and laboratories likewise exposes employees to occupational health problems. Industrial hygiene studies identify conditions which may be detrimental to employee health and evaluate the degree of risk involved. Safety engineering work seeks to correct or control features of the job environment which are conducive to accidents. Medical services screen applicants for physical ability to do particular kinds of work; check employees periodically to detect unfavorable reactions to health hazards associated with certain operations; and provide emergency medical care for illnesses and injuries occurring on the job. Continuing efforts to achieve safe working practices paid off in 1959 with further reductions of both accident frequency and severity rates to record lows. The frequency rate (number of lost-time accidents per million man-hours) was 4.03, declining from 5 in 1958; the severity rate (number of days lost per million man-hours) was 824, dropping sharply from 1,758 the pervious year. Extension of medical and safety services to a larger number of employees operating recently completed power system facilities is the principal change in 1961 workload compared to that estimated for 1960.

Finally, other administrative and general expenses covers primarily the cost to TVA of the annual audit by the General Accounting Office.

Payments to the Treasury

Payments to the Treasury for fiscal year 1961 are estimated at $51 million. Of this total, $49 million would be from power proceeds and $2 million would be from nonpower sources. This will bring total payments from TVA to the Treasury to $342,658,939, of which $299,131,519 is from power proceeds and $43,527,420 from nonpower proceeds. Of the payments from power proceeds, $65,072,500 represents retirement of bonds issued prior to 1940, $195,059,019 represents reduction of the appropriation investment in power facilities ,and $39 million represents a return on such investment in the nature of a dividend.

PAYMENTS FROM POWER PROCEEDS

Prior to August 6, 1959, payments to the Treasury from power proceeds were made pursuant to section 26 of the TVA Act and title II of the Government Corporations Appropriation Act, 1948. Under this legislation, payments totaling $250,131,519 have been made toward reduction of the Treasury's investment in TVA power facilities. Of the total payments, $65,072,500 represents retirement of bonds issued prior to 1940 under sections 15, 15a, and 15c of the TVA Act. As of June 30, 1959, the balance of the appropriation investment in TVA power facilities was $1,198,980,902.

As amended on August 6, 1959, the Tennessee Valley Authority Act provides for payments of stipulated minimum annual amounts as reductions of the appropriation investment in TVA power facilities until a total of $1 billion, exclusive of previous payments, shall have been repaid. The amended act also provides for payments as a return on the appropriation investment equal, for each fiscal year, to the computed average interest rate payable by the Treasury upon its total marketable public obligations as of the beginning of said fiscal year. The 1961 estimates of payments to the Treasury from TVA power proceeds include $39 million as a return on the appropriation investment in the nature of a dividend and $10 million as a reduction of the appropriation investment, leaving a repayable appropriation investment of $990 million as of June 30, 1961.

PAYMENTS FROM NONPOWER PROCEEDS

The balance of nonpower proceeds at the end of each fiscal year not required for the purposes enumerated in section 26 of the TVA Act is paid into the Treasury prior to the end of the following calendar year. The 1961 estimate for payments to the Treasury is $2 million. The total of such payments through June 30, 1961, is estimated to be $43,527,420.

Mr. CANNON. We shall be glad to have a statement from you at this time.

GENERAL STATEMENT

Mr. VOGEL. Mr. Chairman, we are very happy to be here with you this morning to be given this opportunity to present our needs for the next fiscal year.

We have here with us Mr. A. R. Jones, member of the Board; Mr. Brooks Hays, member of the Board; Aubrey J. Wagner, General Manager; Leland G. Allbaugh, Director of Agricultural Relations; L. Edward Ellis, Jr., budget analyst; Paul Fahey, Director of Materials; R. A. Kampmeier, Assistant Manager of Power; Richard Kilbourne, Director of Forestry Relations; Charles J. McCarthy, General Counsel; George P. Palo, Chief Engineer; Louis J. Van Mol, Assistant General Manager and Chief Budget Officer; John H. Walthall, Director of Chemical Development; G. O. Wessenauer, Manager of Power; and Charles H. Young, Manager of Chemical Engineering.

They are all here to assist in presenting any details of our program that you may wish to know.

Last year when we appeared before your committee—in view of the new members at that time—you most generously permitted us to review a great deal of the background of TVA's work, in order that we could properly present a setting for our 1960 budget plans.

I don't believe it will be necessary to go into that detail this year, because the membership of your committee is largely that of last year, but we would like to relate our 1961 budget program to current activities and progress which has been made, and to point out some of the opportunities for service which we see before us.

Since our appearance last year there have been three rather noteworthy events connected with the life of the Tennessee Valley Authority. The first of those was the appointment to the Board of Directors of Mr. Brooks Hays, whom you have greeted. We are very happy indeed to have him as a member of our Board.

The second event, of course, which had very far-reaching consequences, was the enactment of the amendment to the Tennessee Valley Authority Act which authorized the issuance of revenue bonds for financing future power construction.

LOCK CONSTRUCTION PROGRAM

Then there is a third highlight to which I would like to invite your attention. And that is the completion of the new navigation lock at Wilson Dam, Ala., which was opened to navigation in November of 1959 to remove a major bottleneck on the Tennessee River.

With the completion of that lock we are now giving increased attention to the development of similar projects at dams next upstream from Wilson. The operating capacity of the existing small

locks at these dams will very shortly be exceeded by the growing traffic that can now readily pass Wilson Dam.

Last year funds were made available by this committee and the Congress to begin the design of a new, large lock at Wheeler. This year we hope to begin the construction of that lock in order to complete it and have it ready for navigation in calendar year 1963.

That lock will cost about $16 million when it is completed.

At this time also we are asking for funds to begin the design of a new, large lock at Guntersville, Ala. That is the next dam upstream. Such a lock will be necessary in order to accommodate the growing traffic movement to upstream ports that will come when the improved lock at Wheeler has been put into operation.

NAVIGATION STATISTICS

There is no doubt in our minds that navigation on the Tennessee River will continue to grow.

The preliminary figures for the calendar year 1959 show that 12.1 million tons of freight moved on the Tennessee for a total of 2.13 billion ton-miles. This is an increase, over the 1958 traffic, despite a 4 months' work stoppage on part of several of the large common carrier barge lines, and a very prolonged steel strike.

Shipments of grain and grain products in 1959 reached a new high on the river. Coal and coke movement topped the 1958 figures. The movement of chemical products exceeded the 1958 total by about 35 percent.

This whole thing is on an upward movement.

A recent court decision affecting joint barge-rail rates creates an added incentive to use the river for combined barge-rail shipments and we expect an increase in that connection.

In the last decade private industry has invested nearly $700 million in waterfront plants along the Tennessee River. This includes new terminals. Half of all of this invested capital has been expended within the past 3 years to give you some idea of how this whole thing has accelerated.

Recently a large industrial firm began the construction of a new river terminal at Calvert City, Ky. Construction has also been started on a $40 million pulp and papermill just downstream from the Pickwick Landing Dam.

Mr. CANNON. Would you say, Mr. Chairman, that all of this tremendous economic and commercial uplift has had its inception with TVA?

Mr. VOGEL. The impetus given by the Tennessee Valley Authority in developing the river has been the sole reason for this to come about, yes, sir.

Mr. CANNON. That is a convincing justification.

Mr. VOGEL. These shippers who are now using the river expect during the next year to use it more than ever before.

MELTON HILL PROJECT

We in TVA are now working on the design of a new multipurpose dam and reservoir project on the Clinch River, which will be known

as the Melton Hill project. We propose to begin construction of this project in fiscal year 1961.

Melton Hill won't be a big dam, as such projects are now measured, but it will constitute a most significant addition to the TVA system of dams. It will produce a 44-mile-long reservoir extending navigation from Watts Bar Reservoir to a few miles above the city of Clinton, Tenn., and will make possible riverborne shipments of pulpwood, coal, and other raw materials and products of industry.

The hydroelectric plant will have an installed capacity of 72,000 kilowatts. That is not large compared to the capacity of the new steam units which we are installing. But nevertheless it does make use of a replenishable resource, and, therefore, adds to the economy of the Nation considerably.

The recreation benefits, which as you know we do not evaluate in determining benefit-cost ratios, will be very important.

The proposed method of financing the Melton Hill project is unusual. The total cost of $34 million will be financed jointly from appropriated funds and power proceeds.

FLOOD DAMAGE CONTROL

We had no significant floods in the Tennessee Valley during the calendar year 1959. But the structures on the river did operate to reduce the crest of two floods on the Ohio and the Mississippi by 1 and 2 feet, respectively.

The solution to flood problems of local effect continues to be of concern, not only to us, but throughout the Nation. During the past year I am sure you are aware that the Senate Committee on Public Works accepted and published a TVA report, "A Program for Reducing the National Flood Damage Potential."

This was a significant report in our opinion. In brief, it outlined a proposal which calls upon the State and local governments to assume increasing responsibility for solving local urban and rural flood problems and use their police power to regulate the use of flood plains so as to guide future developments into safe areas.

The assumption of this responsibility is essential if we are to stem the growing flood damage potential in the Nation. It will be significant in helping to relieve the Federal Government of its longtime role of providing local flood control structures as remedial measures.

Up to this time we really haven't been gaining ground nationwide on the local flood damage potential as fast as we have been losing it. The recommendations in the TVA report gives a new hope to effect large savings in the future.

This program for reducing the potential flood damages is now attracting national attention. It is stimulating widespread action. We have had many expressions of interest and requests for further information.

The Water Resources Conference of the Council of State Governments is giving serious consideration to the program. An engineering magazine, the Engineering News-Record, reports in a recent issue that the Corps of Engineers is adopting some of the ideas advanced in the TVA report.

To quote this magazine report, it says:

New job for the Corps—Congress is expected to approve a recommendation by Chief of Engineers Emerson C. Itschner that the Corps of Engineers stake out floodprone areas. Under the plan the Corps would study flood plains and warn local officials on vulnerability of prospective construction sites. Should flood damage occur after such warning, Federal relief would be hard to come by.

The State of Indiana is also giving close attention to the problem of regulating developments within the flood plain. I am personally confident that all of these expressions of interest mark the beginning of a new and a better, more forward-looking, attitude toward the solution of local flood problems.

This points up the fact that here the Tennessee Valley Authority is performing what should be one of its principal roles—that of serving as a proving ground in the field of resource development for the entire Nation whereby these new thoughts and new ideas developed may be carried over the rest of the land to provide benefits thereto.

Mr. CANNON. Would you say, Mr. Chairman, that the tremendous prosperity impetus given to business, to private business, and public enterprise, in the Tennessee Valley Authority could be duplicated in other great river systems by installation of similar facilities?

Mr. VOGEL. I don't know whether I could answer that in general, because rivers are so hard to compare. As you know valleys of rivers are also hard to compare. Most river valleys have already reached a state of development beyond that which was found in the Tennessee Valley when the Tennessee Valley Authority was created. But certainly the principles which have been developed within the TVA—the principle of integrated resource development, of stmiulating private enterprise to do a better job, to become more competitive in a world market—are things that we need to keep ourselves mindful of continually.

Mr. CANNON. The record made by the Authority as indicated in your statement is very gratifying and very encouraging.

FACILITIES AND DEMAND FOR POWER

Mr. VOGEL. Mr. Chairman, I have already touched on the new method of financing power facilities from revenue bond proceeds. I mentioned the passage of the amendment to the TVA Act this year. We are very gratified at the way this whole thing has shaped up, because we feel we are now in a position to meet the growing demands for power in the Tennessee Valley region over the next several years, until we have to come back for additional bond authorization. We face the future with confidence.

Residential power use in the valley is continuing to increase, because more households are being created. Young people are getting married and developing new homes. Consumers are increasing their daily use of power by installing more appliances that use electricity. This obviously has a stimulating effect on certain elements of the American market.

Regional commerce and industry are growing. At the close of fiscal year 1959 we had an installed power capacty of about 11 million kilowatts. During fiscal year 1959 we generated almost 61 billion kilowatt-hours of energy. That is a great deal of power. We expect——

Mr. CANNON. It is all utilized?

Mr. VOGEL. Yes, sir.

We expect the 1961 generation to be nearly 69 billion kilowatt-hours, and each successive year will be progressively higher. This thing is not stopping.

Mr. CANNON. The demand for power is growing?

Mr. VOGEL. Continually; yes, sir.

Our plans for 1961 call for continuation of the construction of five steam units and six hydro units, and starting construction of two hydro units at the Melton Hill project. That will produce the 72,000 kilowatts there that I mentioned earlier. Two of the steam unts are in a new plant at Paradise, Ky., in the western part of the system. A third unit will be in the eastern part of the system at a site yet to be determined. We have not yet, of course, determined the date of beginning construction.

These things will all depend upon the results of our continuing survey of our power needs. But these additions will give us a dependable system capacity of 14,750,000 kilowatts for the winter of 1963–64.

Including provision for transmission facilities and cleanup work on other facilities, the total 1961 budget estimate for power facilities is $166,396,000, all to be financed from power proceeds.

FERTILIZER, AGRICULTURE AND MUNITIONS PROGRAMS

I have used some big figures here in describing our plans for the near future. As I come to the fertilizer, agricultural and munitions programs and the program for watershed protection, I will use smaller figures but that doesn't mean the significance of these programs is proportionately less. They are of great importance to the region and to the Nation despite relatively modest financial requirements. They are just as much a part of our continuing responsibilities under the TVA Act as are the more dramatic functions involved in regulating the river and supplying power to a great and growing region of the Nation.

The fertilizer, agricultural and munitions program is national in scope. I would hope that you would keep that clearly in mind. The chemical plant, the laboratory, and staff at Muscle Shoals, Ala., comprise a national defense facility. This unique facility had its origin in the national defense effort of World War I.

Mr. CANNON. As a matter of fact, it was the occasion for the establishment of TVA?

Mr. VOGEL. It was the first element; yes, sir.

Mr. CANNON. We were told at that time that our sources of nitrogen from abroad were in danger of being curtailed, and that this great enterprise would supply nitrogen for gunpowder in time of war and for fertilizer in time of peace.

Just when it was completed, the war closed. And instead of carrying out the pledge made at the time it was installed—that in time of peace it should be used to supply nitrogen for the production of fertilizer—it was closed down and stayed closed down for many years.

You would tell us, Mr. Chairman, then, that the original purpose for the use of the products of that facility in time of peace, in the production of fertilizer, which is more heavily needed as the fertility of American farms declines, is being fully realized at this time?

Mr. VOGEL. It is definitely proving itself in that connection, because it has served to develop new fertilizers using nitrates and phosphates. But not only that, it also served to prove the prognostications of an earlier date in giving greater service to the national defense during World War II and in the Korean war. And right today it stands ready for munitions research and production as that may be needed in another conflict.

Mr. CANNON. It was a bomb made possible by developments in TVA, borne on an airplane with wings fabricated from aluminum through processes made possible by TVA, that ended the Japanese war and, according to the testimony of the military authorities at the time, saved at least half a million men?

Mr. VOGEL. Yes, sir.

Getting on to our fertilizer program, we are producing new and improved fertilizers that are valuable to the farmers, fertilizer manufacturers, and distributors throughout the Nation. All TVA chemical research findings are available, as you know, to the entire fertilizer industry.

TVA patents are used under a royalty-free nonexclusive license, and 161 companies have licenses to manufacture equipment or to use fertilizer processes that TVA invented or discovered.

Mr. CANNON. That is a very impressive record. Especially at this time when population is increasing, and the virgin productivity of our soils is being exhausted, and we must increase the production of our farms.

Mr. VOGEL. These licenses are used in 222 separate plants in 36 different States.

TVA produces experimental fertilizers for use in educational programs with farmers also. During the fiscal year 1959 farmers in 39 States participated in educational tests and demonstrations using TVA fertilizers in farming practices recommended by their State land-grant colleges. About 140 fertilizer manufacturers and distributors and many retail dealers cooperated in this program.

This is what I mean, Mr. Chairman, when I say that this program is national in scope. It is not limited to a small region. The whole country has a stake, as you yourself have just indicated, in new, better, and less expensive fertilizers and in more effective and more efficient fertilizer use.

We are a growing nation. The regional program objectives include these national aims plus the added goal of watershed protection through conservation agriculture and general agricultural resource development. Appropriated fund requirements for the fertilizer, agricultural and munitions development program for 1961 will be $3,506,000. We also expect to use $19,803,000 in nonpower proceeds for this purpose.

The major chemical plant improvement proposed in 1961 covers the start of installing a new electric phosphorus furnace to replace two existing furnaces that are fully depreciated. When we retired these two old furnaces, we really retired two old veterans. They were

used to make phosphorus during two wars and for years of experimental fertilizer production. The total 1961 estimate for chemical plant additions and improvements is $2,207,000.

WATERSHED IMPROVEMENT PROGRAM

Now, as you know well, the Tennessee River rises in the Appalachian Mountains, and within its varied watershed are some of the highest peaks of the Appalachin range. After a wandering path of more than 600 miles, it reaches the Ohio River, 300 feet above sea level. The watershed of the Tennessee covers 41,000 square miles of varied terrain and varying soils, ranging from tree-covered mountains to flat farmland, from sticky clay to powdery soil that washes away and almost melts away in water.

This watershed is of as much conecern to TVA, as is the river itself, because this is the land upon which people live, upon which they make their living.

Along with the development of the river system must go the protection and improvement of this watershed. The problem of watershed protection and improvement in the Tennessee Valley is a complex one. It involves a wide variety of soil types, cover conditions, terrain, and management practices.

Nine-tenths of the land is privately owned. That is as it should be. This rural countryside is owned by some 300,000 proprietors. They, and many thousands more, have an economic interest in the land and in its products. And, of course, TVA has a direct interest too. Within the valley are 28 dams and reservoir projects built or acquired by the Federal Government through the Tennessee Valley Authority at a cost of $800 million. To be of greatest value, these must be protected from the sedimentation that poor land use might cause.

We approach watershed protection and improvement with three major ideas in mind. I would like to emphasize these.

First, you cannot best promote conservation by burdensome laws or by removing abused land from private ownership.

Second, the owners of land and their States and local agencies have the ultimate responsibility for its wisest and best use. Lasting improvement is achieved only as the people themselves understand the reasons for it and give their strength to helping accomplish it.

Mr. CANNON. That is a matter of education?

Mr. VOGEL. Absolutely, sir.

A third point we wish to emphasize is that the Federal Government's greatest contribution to the solution of the watershed problems is in the furnishing of basic data practical suggestions, and leadership, rather than in the exclusive financing of corrective measures or attaining these ends by domination and force.

This involves more than land and more than water. It encompasses the stimulation of economic growth based on regional resources and opportunities.

The 1961 budget program for watershed protection and improvement, calls for the use of $1,245,000. This amount is for research and demonstrations on watershed projects and on forestry programs. The program is primarily regional. But, as I have indicated in

connection with the fertilizer program, it also has a national significance that is very great.

People all over the Nation are watching this valley to see what is coming from a watershed protection and improvement program that offers the people a "do-it-yourself" kit and the guidance of an interested Federal agency. We think these ideas are taking hold. We have seen strong evidence of this in the Beech River watershed and other places where this work is going on.

FISCAL PROGRAM

Our total appropriation request for 1961 is $20,520,000. About $12 million of this is for capital improvements, the rest for operating programs.

In addition, we expect to use $321,012,000 in power proceeds. About half of this amount is for the acquisition of power assets, and the other half is for power expenses. From power proceeds we will pay $10 million to the Treasury to reduce the appropriation investment in power facilities. We also expect to pay the Treasury about $39 million as a dividend on the appropriation investment in power facilities.

From nonpower proceeds we expect to use $24,285,000, most of which will be employed in the production and distribution in our educational programs of experimental fertilizers.

As I have said before, gentlemen, we are very happy to be with you today, and we thank you for the opportunity you have given us of presenting this budget to you. My colleagues on the Board and members of our staff who are here, whom I have introduced to you, are ready to discuss the program with you as you may desire.

We are ready to receive your questions.

Mr. CANNON. I think, Mr. Chairman, this is one of the most impressive and informative statements I have heard since I have been in Washington.

RUSSIAN POWER PROGRAM

In this connection we hear a great deal today about progress made in hydroelectric development in Russia. Has there been any tentative comparison of TVA and its accomplishments with Russian developments?

Mr. VOGEL. Yes. I have personally taken note of reports which we have received, and the people in our power office have similarly compared developments.

I do not have a comparison figure at hand with me, although we could, of course, supply it. But I could say this: hydroelectric projects in Russia are attaining great magnitude. They have, of course, tremendous undeveloped areas in which reservoirs may be created by the building of extremely large dams flooding great areas, which, of course, we cannot do in this country, our land being so much more habitable and occupied.

I am sure they have hydroelectric projects in Russia that are larger than corresponding projects in the United States, but in the field of thermal power developments we are greatly ahead of them.

As you know, we have on order a number of turbogenerators of 500 megawatt capacity for installation on the TVA system—another

unit is rated at 600 megawatts. But we believe that it will develop 700 megawatts of power. To the best of my knowledge, the Russians are engaged, or at least proposing, the construction of a 400-megawatt unit. And this will be their first.

It will be, in our opinion, many years before Russia's power potential overtakes that within the United States. And herein lies as part of our responsibility, and the responsibility of all producers of power in the United States, a terrific challenge to keep building our facilities that we may have sufficient power to keep ourselves economically ahead of the Soviets.

Mr. CANNON. Both at TVA and elsewhere?

Mr. VOGEL. This is a problem that faces the entire Nation. We cannot separate ourselves from it. We realize that the power potential of the entire Nation is growing at a rate of perhaps 10 percent a year. And nothing should be allowed to discourage that.

This is the basic ground root of all of our strength that supplies industry, which, in turn, creates a strong national fiber. We cannot count the strength of nations today in manpower. We count it in kilowatts; because a man can only perform a small amount of work compared with an electrical machine.

Mr. CANNON. That is a very succinct statement.

Mr. VOGEL. So, this is the root of our strength. And it is necessary, too, that in producing this power that we provide it at a sufficiently low cost that our industry can be stimulated; that private enterprise can flourish; and that it can remain in a competitive position with the European market.

We are finding more and more competition coming upon us. It is not enough that we be just competitive among ourselves; we are facing a world market today, Mr. Chairman.

Mr. CANNON. And while, as you say, it is possible that Russia may exceed our installations in size due to terrain topography and other local conditions, there is no indication that they will be able to exceed TVA or even equal TVA in the effectiveness and efficiency with which you have utilized and developed our resources.

Mr. VOGEL. We believe we are ahead of them, Mr. Chairman.

Mr. CANNON. And will stay ahead?

Mr. VOGEL. And will stay ahead, yes.

IMPORTANCE OF POWER DEVELOPMENT

I might tell you at this point that I have just returned from a visit to the Canal Zone where I served as an adviser on some of their power problems, water control problems, and lockage problems. In the course of this I cast my attention to the Republic of Panama itself. I think it is rather startling to note that in that little nation as a whole there is a total of 45,000 kilowatts capacity distributed among some 25 separate plants. These cannot operate efficiently, certainly not on a comparative basis, with a tremendous system such as we have in the Tennessee Valley where we have now over 14 million kilowatts of capacity being developed. In one thermal plant alone—at Kingston—the capacity is 1,600,000 kilowatts.

The power supply situation in Panama stands as a living example of what is needed in any nation in order to give its economy the neces-

sary acceleration to develop itself. The cost of electric power there is so high that only a few people, relatively, can afford it. It has not reached into the rural areas as we have done.

On the way back I stopped in Haiti. On the ship there was the wife of a young naval officer with her two children, returning home because of difficulties in living there, among which was simply the cost of living. She told me that their electric bill ran between $25 and $35 a month. I said that must include a great deal of water heating, because surely you don't heat your houses by electricity. I said it must include refrigeration and air conditioning. She said, "No, that is just for electric lights."

She said in the little Haitian huts that you have seen where they live in one room and have one little light bulb, a 25-watt bulb, hanging from a wire from the ceiling, that their light bills will run from $5 to $8 a month, depending on how much time they have that one light burning.

These are the things that hold back progress in any nation. The fact that we have been able to produce electric power, to make it abundant and plentiful to the people on the farms, the people of average means, so that they can enjoy the benefits of better living, accounts for much of our progress.

Mr. CANNON. You must serve not only the cities but the country?

Mr. VOGEL. Yes.

Mr. CANNON. And serve not only those with great financial and economic advantages, but serve equally well the humblest citizen of the Nation.

Mr. VOGEL. That is right. The effects of it go beyond the region itself. As I stated before, one of the great roles of the Tennessee Valley Authority—and if it ever loses that goal, it becomes of much less value—is that of setting up parameters and establishing bases of comparison, of working out new approaches to these very vital problems that affect every facet of our national economy.

Mr. CANNON. TVA, then, you would say, would be one of the important factors in economic democracy as well as political democracy?

Mr. VOGEL. I think it has been a major factor; yes, sir.

BOND ISSUE PLAN

Mr. CANNON. I was much interested in what your statement on the second point emphasized, our new provision for self-financing.

We would be glad, Mr. Chairman, if you would give us some of the details concerning your proposed bond issue of $115 million. Tell us something about the type of bonds planned, expected acceptance, and debt service estimates, if you will.

Mr. VOGEL. I might say at this point, Mr. Chairman, that we have a well-balanced Board. I, myself, am an engineer. Mr. Jones has had long experience in financial and accounting matters. In your erstwhile colleague, Mr. Brooks Hays, we have a member with a special knowledge of government, a deep concern for people and their well-being.

Mr. CANNON. He was one of our outstanding congressional leaders, and is especially equipped to cooperate with you in that respect.

Mr. VOGEL. That is right. We have had wonderful help from him.

In this connection, and replying to your question, if I may I would like to refer this matter of financial discussion to Mr. Jones, who will be able to answer these questions insofar as they are answerable at this rather early date.

Mr. CANNON. Mr. Jones.

Mr. JONES. Mr. Chairman, I haven't prepared a statement to answer this question. But I will be glad to respond to it extemporaneously.

In the first instance, of course, we are gratified that the Congress has given us a workable revenue bond bill. All of the financial people with whom we have discussed it have said that the bill is a workable one from the standpoint of marketing the securities to be issued under it.

This budget contains an estimate that we may sell $115 million of bonds during the fiscal year 1961. We will not sell those bonds, of course, until we have exhausted the resources we have from our own proceeds. And that is what we are operating on at the moment. Our plans are not complete as to how we will work it out.

The only thing I can do is to give you some ideas that we have as to about how it will work out.

These bonds, of course, will be secured only by our own revenues. We think that they will sell—in fact, we are sure they will sell well in the market, because we have already had considerable interest expressed in the form of inquiries. A good many financial firms from New York have been down to the valley to see the properties, to meet the staff, to meet the Board, and to find out about TVA. The $115 million of bonds will probably be marketed in two lots, about half at each time, which means that we come to the market twice during the next year or so..

Currently we do not think that we will sell any bonds until some time next fall. We will not need the money, because we are generating sufficient funds from our own operations until that time.

Obviously we will prepare a bond which we think will attract the market, which will sell at the lowest interest, and which will leave flexibility in our operaiton so that we can continue to do the type of job we think we are doing now in supplying power to the area.

There have been four syndicates organized to bid on the bonds. We have not made a determination on the method of sale. As you know, the amendment to the TVA Act gives us the authority to either negotiate the sale or sell by competitive bids. At present we are inclined to sell the first issue by competitive bids.

Mr. CANNON. Well, apparently there is prospect, then, of wide acceptance of these bonds when they are finally put on the market?

Mr. JONES. Very definitely. We have contacted the bond people. As I say, there are four syndicates.

Mr. CANNON. And the wider dissemination of the bonds, the better understanding of the public generally of your work and your financing?

Mr. JONES. That is correct.

Certainly one of our responsibilities and one of our objectives is to keep the cost of power at the very lowest figure that we can.

POWER RATES

Mr. CANNON. I wanted to ask you about that. Is there any possibility or any likelihood that you will have to increase your power rates because of the cost of carrying bonded indebtedness and the Treasury repayments required under the new act?

Mr. JONES. That is a question that we cannot answer at this time, Mr. Chairman. We are constantly studying that question.

As you well know, interest rates as of today are higher than they have been. They may be higher now than they will be in the future. And that is one of the very important elements in whether or not our rates will have to be adjusted.

Another element, however, which is just as important, is what we can do in the way of economies. For example, the Paradise plant will probably produce electricity at about a half a mill less per kilowatt-hour than our average production now.

If we can, by intelligent buying, by economical construction, and by good operation, control our costs, we can accommodate the current interest rates. Certainly in issuing the bonds we have every intention to charge rates that will be adequate. We hope adjustment will not be necessary.

Mr. CANNON. In the wide distribution of power and fertilizer from TVA, and the large number of customers you have from the lower income brackets—that is a consummation devoutly to be wished?

Mr. JONES. We hope we can keep the cost of power down, yes. One very strong reason for keeping it down is the contribution that low-cost power makes to lower costs generally. Now, that sounds like a contradictory statement. But the higher use of power than can be attained by residential consumers and others provides more kilowatt-hours to spread fixed costs over, thereby keeping unit costs down. So, by keeping an increasing rate of consumption we contribute to lowering our unit costs. And that in itself is helpful in this problem.

Mr. CANNON. It has a very compelling influence on the cost of living?

Mr. JONES. Indeed, yes.

EARNINGS

Another thing which I would like to point out, which is generally misunderstood about TVA, is this: TVA, over its life, has earned more than just out-of-pocket costs. In the past, earnings averaged over 3¾ percent on the power investment in TVA. So, it is not correct to say that there is now a new element in our costs. TVA has always covered its costs, including the cost of money.

Mr. CANNON. It has always been a yardstick?

Mr. JONES. I have a little difficulty with just saying "yardstick," Mr. Chairman. If you will excuse me, I think it has been an example against which certain costs can be measured.

Mr. CANNON. An economic policeman on the corner?

Mr. JONES. That is right.

For example, the combined cost of TVA and the distributors, in round figures, of putting a kilowatt-hour of power in the homes in the Tennessee Valley is half of the average for the country. This, of course, is one of the big elements of keeping costs low, since low costs

encourage increased use and increased use in turn generates low unit cost.

We do have a condition where the total economic phenomenon of low-cost power contributes to economic development. Let me explain myself on the "yardstick." The reason I do not want to use that term without qualification is that our conditions are not identical to conditions in other areas, and, therefore, our costs cannot be compared with costs in other areas on a direct basis. But the principles we follow of low-cost power are an example for any of them.

Mr. CANNON. It is amenable to adaptation?

Mr. JONES. That is right.

MOVEMENT OF INDUSTRY TO TENNESSEE

Mr. FENTON. Mr. Jones, the chambers of commerce in the TVA area, and indeed some of the State agencies, continue to advertise inviting industries in the North to the TVA area because of this low rate of power.

Mr. JONES. I believe the State of Tennessee and perhaps other States are active, as most of the 48 or 50 States are, in urging industrial developments in their area.

Mr. FENTON. But with the idea that they get low power rates from TVA?

Mr. JONES. That is one of the elements that they point out, that is right.

Mr. FENTON. Of course, that is not fair to the other people, I might say to the gentleman right now.

Mr. CANNON. It is in keeping with the theory of evolution. Competition is an essential element of progress.

Mr. FENTON. I don't think it is fair, Mr. Chairman. And, of course, my power to protest is so mild that it runs like water over a duck's back.

But we can complain that that is what is happening, and that the people of the North are being taxed to cut their own throats.

Mr. VOGEL. May I comment on that, Dr. Fenton?

Mr. FENTON. Yes.

Mr. VOGEL. I think every State of our great Nation has certain inherent advantages which reside in it.

For instance, in your State of Pennsylvania there are many natural advantages to be had. The city of Pittsburgh has an abundant water supply, supplied by two great rivers converging to form a third. The valleys of those rivers, the Allegheny and the Monongahela, have been freed from threat of flood by work done by the Corps of Engineers, in which I had a hand in my day.

In Pittsburgh there has come to be in existence a great golden triangle now actually standing where previously it had only the name, because now it is free from the threat of floods. Certainly Pittsburgh is exploiting that advantage as they should. In Detroit they are exploiting the advantages afforded by the Detroit River as a connecting waterway for the Great Lakes, making it a great automobile center.

Pittsburgh has become a steel center because of the availability of water traffic.

Mr. FENTON. They get nothing more in the flood control area than other parts of the country are getting.

Mr. VOGEL. I don't think any one part should get more than another part except on the basis of actual need and as it is thereby enabled to make itself a stronger link in the national chain. But to say that any segment of the Nation or any State should not talk of its advantages, I think, is to go against the principle of progress as we see it. We gain progress by competition.

Power is seldom a deciding factor in the determination of an industry as to where it should locate. Certainly insofar as the TVA is concerned, we do not urge industries to leave their home States to obtain the benefits of TVA power. The record will prove that this has not been the case; that, in fact, over the past several years—and I might ask in a moment Mr. Hays to talk to this point, because he has made some little study of it—there have been very few industries moving to the Tennessee Valley as related to those which have at the same time been moving out.

This is a transition that is going on continually which we certainly should not discourage because we should always in this Nation seek to do the job best wherever it can be done.

If you will permit me, I would like to ask my colleague, Mr. Hays, to speak to this point briefly.

Mr. CANNON. Director Hays.

Mr. HAYS. Thank you, Mr. Chairman. Before I went with TVA, I had taken some interest in this, because when my own State began to develop industrially or began to develop some aspirations for industry, I was eager for us not to be guilty of piracy, that we not take anything away from any other region or to pursue policies that would cause dislocation elsewhere.

The Nation can never profit by any regional policy that develops one area at the expense of other regions. We know that. And it seems to me sometimes in its eagerness to advance, a State or region might unconsciously, and not overtly, drift into a policy that isn't fair and ethical. Recently I read an old speech of mine which I was happy to run across in light of this new experience taking this very line of policy. Mr. Chairman, in the 9 months I have been with TVA I have found exactly that policy and attitude prevailing. We are seeking to help the people develop their own resources and conserving under the congressional mandate the basic resources of the region.

But this charge—this fear on the part of some that the Valley might be luring industry unethically—worried me. So, I looked into it. And I have the figures on it. If we can proceed on the theory that each region is entitled to a share in the growth of American industry and I think that is what each region is entitled to seek, namely its proper share of the growth of industry.

If we can do that, we will have a principle that is just and equitable. But this is not to take industries away from other regions. So I am happy to have these figures which I think proves consistent policy as far as the TVA activity is concerned.

From 1940 to 1958, 25 firms employing 3,800 people ceased operations elsewhere and moved into the Tennessee Valley area. At the same time, 9 firms employing 2,000 workers moved out. So the net

gain in 18 years was 16 firms and 1,800 workers. Now that is strictly confined to the movement of industries and firms and had nothing to do with new industries starting. I think these figures are significant.

REPAYMENT OF FEDERAL INVESTMENT

Mr. CANNON. It should not be forgotten also that TVA pays back every penny it borrows from the Government, with interest in full.

Mr. VOGEL. As relating to its power program, that is true, sir. With relation to the other elements of its program, of course, it is in exactly the same position as is every other area of the United States.

Mr. FENTON. Of course, that has not been true in the past. They have not been doing that. Now, one of the largest of the TVA advantages has been the freedom from Federal taxes and from payment into the Treasury of interest on the billion dollars that the taxpayers have invested in TVA. We have never said they haven't done a good job down there.

But we think that the time has come that they ought to take care of themelves. For over 30 years now they have been in existence. And I think that they have progressed, or at least they have bragged that they have progressed to the point that they are now saying what a fine area they have.

Now, they have not only taken up the power problem unto themselves, but they are getting into other features duplicating efforts of the Federal Government, agriculturally and otherwise.

Of course, this is my opinion and how I feel about it. As I say, it is not going to change the situation at the moment. But, nevertheless, I feel in justice to an area with a lot of unemployment in it, a coal mining area, whose citizens are helping pay the taxes to keep this outfit going, that some time this tax dollar ought to be spread a little more evenly, I think.

Mr. VOGEL. Dr. Fenton, I think that Congress in its wisdom has taken into account exactly these things which you have mentioned. And I think we should be talking about the present rather than too much about the past.

As it stands now, we have an amendment to the TVA Act under which we will be making annual returns to the Federal Government in the form of dividends at current interest rates. At the same time we will be paying back to the United States in large part the money which has been appropriated for the building of these power facilities. Over the years there has been invested by the Federal Government in Tennessee Valley Authority power facilities nearly a billion and a half dollars, of which all has been repaid except $1,200 million.

Under the amendment to the act, during the next 54 years there will be repaid into the Treasury of the United States, $1 billion of the $1,200 million, leaving the United States with a residual investment of $200 million of appropriated funds. And during that same period of 54 years, there will be paid to the Treasury of the United States in the form of dividends (assuming 3½ percent as the cost of money a total of $1,396 million, exceeding the amount which is repaid as principal.

By that time the facilities of the Tennessee Valley Authority will have grown. And I should really ask Mr. Wessenauer to give you

his prognostications. But I would be probably criticized on the side of restraint if I said that these facilities will have grown to a net worth of several billion dollars, all of which the United States will then own for an investment of $200 million. I don't think that is a bad investment for anybody.

Mr. CANNON. As I understand it, TVA has from the beginning compensated local governments for any loss of taxes which might accrue?

Mr. VOGEL. That is true; yes, sir.

Mr. CANNON. Mr. Rabaut.

SERVICE OF TVA TO THE UNITED STATES

Mr. RABAUT. What credit has the TVA set up on its books for the service it has rendered the U.S. Government in the wars?

Mr. VOGEL. There has been nothing taken in the way of financial credit on the books for that, Mr. Rabaut.

Mr. RABAUT. Don't you think there should be?

Mr. VOGEL. Well, that gets into a philosophy of government——

Mr. RABAUT. TVA gave us a great chance with the aluminum production when we needed it so bad. When we talked about 50,000 planes, we thought it was a joke.

Mr. VOGEL. I am sure you are correct, sir. But when you try to evaluate the value of a nation's life, it is just as difficult as trying to evaluate an individual's life.

Mr. CANNON. It also saved half a million men.

Mr. VOGEL. It is as difficult as trying to evaluate the life of an individual. What is it worth?

It is immeasurable.

Mr. RABAUT. It should have a passing reference, I should think, some place.

Mr. VOGEL. Well, perhaps you are right on that, sir. We have felt that these effects have been so self-evident that people could hardly miss them.

Mr. RABAUT. The Muscle Shoals project laid there for a long time dormant until the Congress became alerted when Henry Ford said he was ready to buy it.

Mr. VOGEL. That is right.

Mr. RABAUT. And having the success that he had in his life, right away they decided they had better hang onto it themselves, which was a great decision that the Government made at that time.

Mr. VOGEL. With most significant results.

BARGE-RAIL TRANSPORTATION COSTS

Mr. CANNON. You also referred, Mr. Chairman, in the course of your statement, to a court decision concerning barge-rail traffic. We would be glad to have further information on that.

Mr. VOGEL. May I ask Mr. McCarthy to give you a quick rundown on that?

Mr. CANNON. Mr. McCarthy.

Mr. MCCARTHY. That is the case entitled "*Arrow Transportation Company et al.* v. *Interstate Commerce Commission et al.*" TVA, the States of Tennessee and Alabama, and a number of agencies in the Tennessee Valley, port cities, and chambers of commerce joined to-

gether in an effort to obtain rates out of the Tennessee River ports which would make it possible for the area to obtain the benefits of water transportation of grain.

The Southeast has been a grain-deficit area and, of course, the grain-producing area is in the Midwest, along the upper Mississippi, the Illinois, and the Missouri Rivers. The Tennessee River forms a natural waterway for the movement of that grain from the Midwest into the Southeast where it is needed to serve the rapidly expanding poultry and dairy industries.

But the freight rate situation was such that when the grain reached ports like Guntersville and Chattanooga it couldn't go on beyond by rail because the rates were so high. The railroads had succeeded in maintaining a level of rates out of those ports which was so high that although the rate by water from Kansas City, say, into Chattanooga was only about one-fourth of the rail rate, by the time the grain moved on beyond, say to Orangeburg, S.C., the high rail rate from the port had eaten up all the savings on the inbound movement, so that it was cheaper to ship by rail.

We had this situation: that if grain came in by barge to Chattanooga and was unloaded at an elevator, and grain came in by rail and was unloaded at the same elevator, and a month later the owner of that elevator wanted to ship the grain out by rail—the same movement, the same costs and everything else—if the grain had come in by rail he paid one price which was very low, and if it had come in by barge he paid another price which was very high.

We have been battling this case through the Interstate Commerce Commission for several years. It has been a long and tiresome journey. We finally got some relief from the Interstate Commerce Commission, but nowhere near the relief that we thought we were entitled to, so we filed suit in the northern district of Alabama. The three-judge court for the northern district reversed the Commission and held that the railroads running out of the Tennessee River ports had to treat the incoming barge lines as well as they treated the incoming railroads; that when grain moved out of the ports they couldn't make a distinction and charge one rate if it had come in by rail and another rate if it had come in by barge. The decision was appealed to the U.S. Supreme Court which unanimously granted a motion to affirm. We are now back before the Commission trying to make that relief effective by actually getting the rates.

Mr. CANNON. And thereby benefit both the farmer who grew the grain and the consumer family which ate the bread?

Mr. MCCARTHY. Yes. I think this is one of the most far-reaching decisions in the last 20 years in the field of transportation. There has been a tremendous growth in poultry and dairying in the area near the Tennessee River—northern Georgia, northern Alabama, and way down into Florida, and the evidence in this case is that the midwestern farmers gets several cents a bushel more for his grain when it is shipped out by barge than he does when it is shipped out by rail. The savings in the barge movement are divided. Some of them go to the grower in the Midwest; some of them go to the consumer in the Southeast.

Mr. CANNON. And the consumer also profits?

Mr. MCCARTHY. Yes.

Mr. VOGEL. This points up that the benefits achieved in the Tennessee Valley Authority area are not necessarily restricted thereto. In this instance the grain growers of the Midwest again substantially benefit by this decision.

Mr. WAGNER. Mr. Chairman, their market is expanded also. I looked into this problem, I suppose, 15 or 18 years ago. At that time a total of only about 1½ million tons of grain moved by all methods from the Midwest into the Southeast. Currently something up to 2½ million tons per year is moving by river alone. And considerably more by other means of transportation. So that here, as in the case of low electric light rates, the availability of lower cost transportation expands your market. And it has not only given midwestern farmers higher prices for their grain but has given them a market for more tons of grain.

Mr. CANNON. It is a contribution to the national economy.

Mr. WAGNER. Yes, sir.

Mr. CANNON. Mr. Rabaut.

Mr. RABAUT. You have this matter, you say, Mr. McCarthy, before the Board?

Mr. MCCARTHY. We are back before the Interstate Commerce Commission, yes.

Mr. RABAUT. How long have you been there?

Mr. MCCARTHY. Since 1951.

Mr. RABAUT. What is delaying them?

Mr. MCCARTHY. Well, it has been a long story. The case took a long time to try. The Commission decided unanimously against us. We filed a petition for rehearing. That was denied. We filed suit in Federal court and shortly after the suit was filed, the U.S. Supreme Court handed down a decision in the case known as the *Dixie Carriers* case, which was rather closely in point. The Commission then reopened the case again and asked the Court to hold the court case in abeyance while they reconsidered their decision.

Mr. RABAUT. When was that about?

Mr. MCCARTHY. That was about 4 years ago.

Mr. RABAUT. All right. Go ahead.

Mr. MCCARTHY. They held the case before them for nearly 2 years and then they handed down a decision reaffirming what they had done before.

So, we went back to court and filed a supplemental complaint. As we were getting ready to get a decision on that, the Commission said they wanted to reopen the case a third time. We objected. We said the Commission had had all the opportunity it needed to consider the case, and we wanted relief from the court.

The court, however, said that it would withhold the decision for a period of several months to give the Commission an opportunity to review the case again. The Commission reviewed it.

Mr. RABAUT. When was that?

Mr. MCCARTHY. I don't have the chronology here.

Mr. RABAUT. You can supply it for the record.

Mr. MCCARTHY. I will be glad to supply it. That was perhaps a year and a half ago.

(The chronology is fully set out in the decision of the district court which follows on p. 846.)

Mr. RABAUT. Yes. Seven months. A year and a half. That is 18 months.

Mr. MCCARTHY. Something like that, yes.

Then the Commission handed down a decision which gave us part of the relief that we were entitled to.

There were some ex-barge rates out of Memphis. The Commission held that we were entitled to similar rates out of the Tennessee River. But that didn't cure the discrimination against the ex-barge traffic, so we went back to court with a third supplemental complaint. We had a hearing before the court and the court fully sustained our position. It held that the Commission was in error in its philosophy and that it was in error in refusing to admit evidence of the divisions received by the outbound railroads.

Mr. RABAUT. Aren't the Commissions supposed to be representing the people?

Mr. MCCARTHY. I assume that they are.

Mr. RABAUT. It is time they took cognizance of their position.

Mr. MCCARTHY. The court in handing down its decision took the extraordinary step of entering an order under section 10(e) of the Administrative Procedure Act, which authorizes the courts to require commission action if it has been unlawfully withheld or unreasonably delayed.

It ordered the Commission to put in lawful, reasonable, and nondiscriminatory rates as soon as possible.

Mr. RABAUT. What does that term mean "as soon as possible"?

Mr. MCCARTHY. That is what we are trying to find out now. We had a hearing yesterday afternoon before the Commission. It was a prehearing conference in which we were trying to get an agreement as to the evidence that the railroads would supply. We didn't get very far and it looks as though we are going to have to file a motion with the Commission for a subpena. I hope the Commission will grant it.

If it doesn't we may have to go back to the court again and tell the court that we are not getting the relief that we were supposed to get.

This case, Mr. Rabaut, is an interesting case study in the operation of an administrative agency.

Mr. RABAUT. They will at least know we took cognizance of what is going on. Please put into the record a complete story on the court case.

(The matter referred to follows:)

IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ALABAMA, NORTHWESTERN DIVISION

CIVIL ACTION NO. 961

Arrow Transportation Company, et al., Plaintiffs, vs. *United States of America*, Defendant, and *Interstate Commerce Commission, et al.*, Intervening Defendants

Filed in Clerk's Office, Northern District of Alabama, July 20, 1959. William E. Davis, Clerk, U.S. District Court.

Before RIVES, Circuit Judge, and LYNNE and GROOMS, District Judges.

LYNNE, District Judge.

This action, authorized by the provisions of 28 U.S.C. 1336 (1952), was brought by the Arrow Transportation Company[1] and sixteen other plaintiffs[2] to enjoin, set aside, annul, and suspend orders of the Interstate Commerce Commission in a proceeding entitled *American Barge Line Co.* v. *Alabama G.S. R.R.*, 296 I.C.C. 247 (1955), *aff'd*, 303 I.C.C. 463 (1958), *modified* March 24, 1959, insofar as they relate to rates on ex-barge grain[3] from the Tennessee River ports of Sheffield, Decatur, Guntersville, Chattanooga, and Knoxville. Impleaded as a statutory defendant, the United States has filed an answer in which it confesses error and joins the plaintiffs in their prayer for relief. The Interstate Commerce Commission, the Kansas State Corporation Commission, certain Kansas and Missouri milling interests, the Boards of Trade of Kansas City, Chicago, and Indianapolis, and the major southern and midwestern railroads have been granted leave to intervene and have filed answers to the complaint in support of the Commission.

This controversy has had a long history. In its natural state the Tennessee River was a series of rapids and shoals and was unsuited for modern navigation. But with the construction of a series of dams by the Tennessee Valley Authority, it has now become a highly navigable waterway which provides a direct route for the movement of grain from the surplus-producing areas of the Midwest to the deficit areas of the Southeast where the grain is needed to serve expanding livestock and poultry industries, as well as for human consumption. With the development of the Tennessee River came the need for ex-barge rates which would permit the grain to move over the Tennessee River and by rail beyond the river ports.

Under the existing rate structure the railroads charge their full local rates for the transshipment by rail of ex-barge grain from the Tennessee River ports while affording more favorable treatment to ex-rail grain transshipped from those ports, and also to ex-barge grain transshipped from the competing port of Memphis. This rate structure inhibits the movement of barge grain beyond the ports and the plaintiffs contend, and we think correctly, that this rate

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[1] Hereinafter referred to as "Arrow."

[2] State of Alabama, Alabama Public Service Commission, State of Tennessee, Tennessee Public Service Commission, Alabama Farm Bureau Federation, city of Guntersville, Ala., Guntersville Chamber of Commerce, Chattanooga Area Milk Producers Association, Chattanooga Chamber of Commerce, Knoxville Chamber of Commerce, city of Decatur, Ala., Decatur Chamber of Commerce, Farmers Union Grain Terminal Association, Indiana Farm Bureau Cooperative Association, Inc., Tennessee Farm Bureau Federation, and Tennessee Valley Authority.

[3] The following definitions of terms will be helpful to an understanding of the grain rate structure with which this case is concerned:

Ex-barge grain.—Grain transported outbound from a port by rail which has had a prior movement into that port by barge.

Ex-rail grain.—Grain transported outbound from a port by rail which has had a prior movement into that port by rail.

Local rate.—A rate which applies to the entire transportation of grain and grain products between two local points.

Porportional rate.—A rate less than the local rate which is applicable only when there has been a prior movement by rail or barge. To be entitled to the proportional rate, the shipper need not establish that he is reshipping the identical grain or grain product that moved inbound. He need only surrender bills of lading showing an inbound movement of equivalent tonnage.

Ex-barge proportional rates.—Proportional rates applicable to ex-barge traffic.

Ex-rail proportional rates.—Proportional rates applicable to ex-rail traffic.

Joint through rate.—The total rate from the origin to the final destination published as a single rate covering the entire movement.

Transit.—The privilege of stopping grain or grain products at any point for storing or processing and subsequently shipping an equivalent tonnage outbound.

Transit point.—Any place at which a commodity may be transited.

Transit balance.—The difference between the rate from origin to the transit point and the rate from origin to the final destination.

Division.—The share of a through rate received by any of the participating carriers.

structure does not recognize and preserve the inherent advantages of barge transportation as required by the National Transportation Policy and is contrary to the requirements of various sections of the Interstate Commerce Act.

On January 4, 1951, a complaint was filed with the Commission asking that it prescribe ex-barge rates on grain from the Tennessee River ports. After extensive hearings, briefs, and argument, the Commission dismissed the complaint on July 18, 1955. A petition for reconsideration was denied and the plaintiffs then commenced this action on March 6, 1956. Before filing an answer the Commission, by order dated May 4, 1956, reopened the ICC proceeding on its own motion for reconsideration in the light of the Supreme Court's decision in *Dixie Carriers* v. *United States*, 351 U.S. 56 (1956). With the consent of all parties, this court entered a stay of this action. After further argument and briefs the Commission kept the case under advisement until March 19, 1958, when it entered an order affirming its previous decision. Plaintiffs then filed an amended and supplemental complaint on May 29, 1958, asking this court to enjoin and set aside the Commission's order of March 19, 1958.

The complaint in the ICC proceeding was filed jointly by Arrow and two other barge lines, American Barge Line Company and Federal Barge Lines, Inc. The complaint also involved ex-barge rates from ports on other rivers as well as the Tennessee, but Arrow was interested only in the rates from the ports on the Tennessee River. On July 9, 1958, American and Federal filed a petition with the Commission seeking reconsideration of that part of the Commission's order of March 19, 1958, which related to ports on rivers other than the Tennessee. No party requested reconsideration of the Tennessee River phase of the ICC proceeding. By order dated August 27, 1958, the Commission granted American and Federal's petition and, on its own motion, reopened the proceeding for reconsideration and further oral hearing on all issues, including those before this court. On September 12, 1958, this court set down this case for hearing on October 27. On September 17 the Commission entered yet another order, vacating its order of March 19, 1958, and setting the case for further hearing before an Examiner on October 20.

A second supplemental complaint was filed herein on October 6, 1958, asking this court to set aside the Commission's orders of August 27 and September 17, 1958, and, in the alternative, for an order under section 10(e) of the Administrative Procedure Act[4] compelling the Commission to take action "unlawfully withheld or unreasonably delayed." On October 14, 1958, this court granted a temporary restraining order enjoining the Commission from holding any further hearing in the ICC proceeding on the issues involved in this case pending a hearing and determination by this court.

A hearing before this court was held on October 27, 1958. In order to avoid the appearance of unseemly conflict between court and Commission, we dissolved the temporary restraining order on November 3, and ordered that the filing of an opinion and the entry of final judgment in this case would be withheld until March 2, 1959.

"* * * without prejudice to exercise by the Interstate Commerce Commission of its concurrent jurisdiction and to the entry by the Commission of a final, definitive order relating to the issues involved herein on or before such date. * * *"

In response to a request from the Commission dated February 19, 1959, we agreed to withhold judgment for an additional thirty days and on March 24 the Commission issued an order and accompanying report containing its findings on reconsideration. In its latest decision the Commission has prescribed rates which, when put in effect, will cure the section 3(1) violation of which the plaintiffs complain, but it has failed to give Arrow relief as a connecting carrier. The report and order of March 24 denied relief under sections 1, 2, and 3(4) of the Interstate Commerce Act by reaffirming and incorporating by reference the Commission's prior findings on these issues. It cited no new evidence and made no new findings on these issues. On April 20 we set this case down for argument on the status of the section 3(4) issue in this action under the Commission's report and order of March 24, 1959. The Commission then on May 25 entered an order postponing the effective date for compliance with its order of March 24, 1959, "in view of the pendency of the action before the court." Argument was heard on June 17 and the plaintiffs filed a third supplemental complaint to bring before the court so much of the latest decision of the Commission as reaffirmed its previous findings on the sections 1, 2, and 3(4) issues at the

[4] 60 Stat. 243–244 (1946), 5 U.S.C. § 1009(e) (1952).

Tennessee River ports. The case is now ripe for final disposition by this court.

Two threshold contentions relating to the jurisdiction of the court must be resolved. The Commission denies the standing to sue of certain of the plaintiffs but does not question the standing of several of the plaintiffs, including Arrow. In view of the admitted right of these plaintiffs to maintain this action and the liberal statutory provisions for intervention,[5] it is immaterial whether the challenged plaintiffs have standing to sue. *Interstate Common Carrier Council* v. *United States*, 84 F. Supp. 414 (D. Md.), *aff'd*, 338 U.S. 843 (1949).

The intervening defendants also contend that the effect of the Commission's orders of August 27 and September 17, 1958, was to oust this court of its jurisdiction to decide the case on the merits. All parties concede that at the time both the original and the first supplemental complaints were filed in this court, all the statutory requirements for judicial review had been fully satisfied and plaintiffs had completely exhausted their administrative remedy.[6] It is settled law that the jurisdiction of this court depends upon the facts existing at the time the complaint is filed. Once jurisdiction has vested, it cannot be ousted by subsequent event.[7] In any event, any possible question as to jurisdiction has been eliminated by the filing of the third supplemental complaint, bringing before this court for review so much of the Commission's report and order of March 24, 1959, as reaffirmed its prior findings in issue before this court.

Turning to the merits, it is at once apparent that this case presents another chapter in the conflict between the requirement of the National Transportation Policy that the provisions of the Interstate Commerce Act be administered in such a way as to preserve the inherent advantages of water transportation and the desire of the railroads to offset those advantages by refusing to accord to traffic received from a connecting barge line the same treatment accorded to traffic received from connecting railroads.

Reversing the usual procedure, we turn first to the controlling legal principles before discussing the facts to which these principles must be applied.

The Transportation Act of 1940 declares that it is the National Transportation Policy

"* * * to provide for fair and impartial regulation of all modes of transportation subject to the provisions of this act, so administered as to recognize and preserve the inherent advantages of each * * *" [54 Stat. 899 (1940), 49 U.S.C. note preceding § 1 (1952)].

The legislative history of this statutory provision is set out in the dissenting opinion of Mr. Justice Black in *Interstate Commerce Comm.* v. *Inland Waterways Corp.*, 319 U.S. 671, 697–701 (1943), and in the subsequent opinions of the court in *Interstate Commerce Comm.* v. *Mechling*, 330 U.S. 567 (1947), and *Dixie Carriers* v. *United States*, *supra*. That history shows that many members of Congress were apprehensive that the Commission would so exercise the regulatory powers conferred by the Transportation Act of 1940 as to prevent water carriers from competing effectively with the railroads. The act was passed only after repeated assurances that these fears were groundless because the Commission would be bound by the provisions of the National Transportation Policy.

There was extensive debate as to whether the National Transportation Policy prescribed standards to which the courts would require the Commission to

[5] "The Interstate Commerce Commission and any party or parties in interest to the proceeding before the Commission, in which an order or requirement is made, may appear as parties of their own motion and as of right, and be represented by their counsel, in any action involving the validity of such order or requirement or any part thereof, and the interest of such party.

"Communities, associations, corporations, firms, and individuals interested in the controversy or question before the Commission, or in any action commenced under the aforesaid sections may intervene in said action at any time after commencement thereof" (62 Stat. 970 (1948), 28 U.S.C., sec. 2323 (1952)).

[6] "When an application for rehearing, reargument, or reconsideration of any decision, order, or requirement of a division, an individual Commissioner, or a board with respect to any matter assigned or referred to him or it shall have been made and shall have been denied, or after rehearing, reargument, or reconsideration otherwise disposed of, by the Commission or an appellate division, a suit to enforce, enjoin, suspend, or set aside such decision, order, or requirement, in whole or in part, may be brought in a court of the United States under those provisions of law applicable in the case of suits to enforce, enjoin, suspend, or set aside orders of the Commission, but not otherwise" (54 Stat. 916 (1940), 49 U.S.C., § 17(9) (1952)).

[7] *Mullen* v. *Torrance*, 22 U.S. (9 Wheat.) 537 (1824); *St. Paul Indemnity Co.* v. *Cab Co.*, 303 U.S. 283 (1938); *Minneapolis R.R.* v. *Peoria Ry.*, 270 U.S. 580 (1926); *Gulf, M. & N.R.R.* v. *Merchant's Specialty Co.*, 50 F. 2d 21 (5th Cir. 1931); *Corray* v. *Baltimore & O.R.R.*, 2 F. Supp. 829 (E.D. Ill., 1933); *Pacific Inland Tariff Bureau* v. *United States*, 129 F. Supp. 472, *aff'd on rehearing*, 134 F. Supp. 210 (D. Ore., 1955).

adhere. To eliminate any question on this score, Congress adopted the Whittington amendment, which provides that:

"All of the provisions of this [the Interstate Commerce] act shall be administered and enforced with a view to carrying out the above declaration of policy" [54 Stat. 899 (1940), 49 U.S.C. note preceding § 1 (1952)].

Congress thus made clear that it was imposing on the Commission a positive and active duty to administer each provision of the act in such a way as to preserve the inherent advantages of each mode of transportation.

That the standards prescribed by the National Transportation Policy are binding upon the Commission has been frequently affirmed by the United States Supreme Court.[8] The most recent pronouncement is in *Schaffer Transp. Co.* v. *United States*, 355 U.S. 83 (1957), where the court said:

"The National Transportation Policy, formulated by Congress, specifies in its terms that it is to govern the Commission in the administration and enforcement of all provisions of the Act, and this Court has made it clear that this policy is the yardstick by which the correctness of the Commission's actions will be measured" [pp. 87–88].

The precise issue of whether the Commission can penalize ex-barge traffic by permitting the railroads to charge higher rates on such traffic has been before the United States Supreme Court on three occasions. In *Interstate Commerce Comm.* v. *Mechling*, *supra*, the Supreme Court held that the Commission could not lawfully permit the railroads to charge higher rates on ex-barge grain than they charged on ex-rail grain. In *Dixie Carriers* v. *United States*, *supra*, the court held that the Commission could not permit the railroads to apply local rates to the handling of ex-barge sulphur where ex-rail sulphur was handled on a division of a joint rate. In both of these decisions the Supreme Court made clear that the Commission has no discretion to approve any rate structure which deprives shippers of the inherent advantages of water transportation. In *James McWilliams Blue Line* v. *United States*, 100 F. Supp. 66 (S.D.N.Y. 1951), *aff'd*, 342 U.S. 951 (1952), the Supreme Court affirmed on motion, on the authority of *Mechling*, a holding of the lower court that the Commission could not approve a rate structure which permitted higher rail rates on inbound coal traffic if there was a subsequent movement by barge.

Another phase of the same problem was before this court in *Tennessee Valley Authority* v. *United States*, 96 F. Supp. 409 (N.D. Ala. 1951). In that case the court held unlawful an attempt by the railroads to charge higher rates for ex-barge switching them for ex-rail switching where the difference in rates was not justified by differences in cost.

These cases stand for a broad principle of general application. As stated by the United States Supreme Court in *Mechling:*

"The foregoing provisions flatly forbid the Commission to approve barge rates or barge-rail rates which do not preserve intact the inherent advantages of cheaper water transportation, but discriminate against water carriers and the goods they transport.

* * * * * * *

"Congress has decided this question of equitable rates as between railroads and barges. It has declared in unmistakable terms that the 'inherent advantage' of the lower cost of barge carriage as compared with that of railroads must be passed on to those who ship by barge. It is therefore not within the province of the Commission to adjust rates, either to equalize the transportation cost of barge shippers with that of shippers who do not have access to barge service or to protect the traffic of railroads from barge competition. For Congress left the Commission no discretionary power to approve any type of rates which would reduce the 'inherent advantage' of barge transportation in whole or in part" *Cf. Mitchell* v. *United States*, 313 U.S. 80, 97 [330 U.S. at 577–579].

The principle established by these cases is dispositive of the present proceeding. The Commission has approved ex-barge rates from the Tennessee River ports which deprive shippers of part of the savings which they can accomplish by moving grain inbound to those ports by barge. This it is forbidden to do by the explicit mandate of the Congress.

The plaintiffs complain basically of two types of discrimination—discrimination in favor of the inbound railroads prohibited by section 3(4) of the Inter-

[8] *McLean Trucking Co.* v. *United States*, 321 U.S. 67, 80–83 (1944); *Eastern-Central Assn.* v. *United States*, 321 U.S. 194, 206 (1944); *Interstate Commerce Comm.* v. *Mechling*, 330 U.S. 567 (1947); *Dixie Carriers* v. *United States*, 351 U.S. 56 (1956); *Schaffer Transp. Co.* v. *United States*, 355 U.S. 83 (1957).

state Commerce Act, and discrimination in favor of a barge-rail movement through the competing port of Memphis, which is prohibited by section 3(1). In view of the Commission's decision of March 24, 1959, prescribing rates that, when made effective, will eliminate the preference and prejudice in violation of section 3(1), the basic issue remaining for decision by this court is whether there is also a discrimination prohibited by section 3(4).

The situation as to this discrimination can be illustrated by taking the example of a Chattanooga dealer who wishes to ship grain from Kansas City to Chattanooga and subsequently reship it to Orangeburg, South Carolina. He can purchase grain in Kansas City and arrange for shipment to Chattanooga by barge for delivery by Arrow or by rail for delivery by the L. & N. Railroad. In either case, the grain is shipped from Kansas City to Chattanooga on a bill of lading showing Chattanooga as the destination and the delivery is completed when the barge or car is placed for unloading at the dealer's elevator or mill. The difficulty arises when he wishes to reship to Orangeburg, South Carolina, over the Southern Railroad at a later date. If the grain came in by rail, he can surrender his inbound bill of lading and ship either the grain, or the grain products into which it has been manufactured, from Chattanooga to Orangeburg for 16 cents per hundredweight. If the grain was brought in by barge, however, he must at present pay a rail rate of 54 cents for the movement from Chattanooga to Orangeburg, and the savings on the inbound barge transportation are thus destroyed.[9]

Under the level of rates prescribed by the Commission's latest order, the evidence of record indicates that the ex-barge rate from Chattanooga to Orangeburg would be reduced from 54 cents to 35.5 cents. The discrimination against Arrow would thus become less severe but it would not be eliminated. Even more serious from the point of view of the barge line is the Commission's refusal to recognize its right to the equality of treatment under section 3(4) which it has been seeking to establish for eight years in this litigation.

In denying relief under section 3(4), the Commission reaffirmed the following finding in its report of March 19, 1958:

"The second phase of the complaint attacks the local rail rates which apply on ex-barge grain from ports on the Tennessee River to points in the South. Respecting this phase, section 3(4) is not in issue because no rail proportionals are published from those ports to the South" [303 I.C.C. at 471].

In its most recent report the Commission granted relief under section 3(4) to those barge lines serving Ohio and Mississippi River ports where the rail rates are published as separately established proportional rates. The Commission thus bases its denial of relief under section 3(4) to plaintiffs on the fact that the rail rates through the Tennessee River ports are published as single-factor through rates rather than separately established proportional rates as at the Ohio and Mississippi River ports. The effect of the Commission's decisions is that the railroads may freely vary the charges for ex-barge and ex-rail reshipments, as long as they do so by means of unpublished divisions of a through rate rather than published proportional rates. Therefore, unless Arrow obtains a decision on the 3(4) issue, which was squarely presented both to the Commission and to this court, it will have simply won a skirmish on a side issue (sec. 3(1)) and may yet face years of litigation as the railroads abandon the use of proportional rates for the cover of divisions.

The differences upon which the Commission finally rests its holding is one of the form in which the rates are published, but the decisions of the Supreme Court in *Mechling* and *Dixie Carriers* make it abundantly clear that carriers cannot hide their discrimination against ex-barge traffic behind the veil of a through rate any more than they can charge a higher proportional rate on ex-barge than on ex-rail traffic. The thrust of the *Mechling-Dixie* rationale goes much deeper than form—it makes clear that Congress imposed a duty upon the Commission to eliminate discrimination in whatever guise or form it exists. As stated by the Supreme Court in *Mechling:*

"* * * Congress left the Commission no discretionary power to approve *any type of rates* which would reduce the 'inherent advantage' of barge transportation *in whole or in part*" [330 U.S. at 579; emphasis added].

[9] The difference between the 54-cent local rate and the 16-cent "transit balance" is not necessarily the measure of the discrimination. The Southern receives as compensation for hauling the ex-rail grain a "division" of the through rate from Kansas City to Orangeburg which may be more or less than the transit balance, making whatever adjustment with the L. & N. as is necessary.

It is immaterial to the question of discrimination whether the compensation a carrier receives on ex-rail traffic is in the form of a separately established proportional rate, or a division of a through rate. In either event the yardstick for measuring discrimination against ex-barge traffic is the compensation received by the outbound rail carrier on ex-rail traffic from the same port to the same destination. This is not to suggest that the division received by the railroad on ex-rail traffic necessarily establishes the exact rate at which ex-barge traffic must be handled. We simply hold that the fact that the inbound carrier is a barge line rather than a railroad is not a factor which may properly be considered in fixing the charge for the outbound rail movement and that the divisions received on ex-rail movements are *prima facie* evidence as to what charge should be assessed upon ex-barge movements.[10] The plaintiffs attempted to show the divisions received by the railroads on ex-rail traffic, but the Commission refused to receive the evidence. In this the Commission erred. *Dixie Carriers* v. *United States, supra.*

The contention is advanced with apparent seriousness by some of the intervening defendants that Arrow is not a connecting carrier in relation to the railroads which serve the Tennessee River ports. This argument is wholly without merit. At each of the Tennessee River ports there are facilities by which grain can be transferred directly from barges into rail cars, but the normal type of transfer is through an elevator. We hold that Arrow is a connecting carrier of the outbound rail carrier when it delivers grain in its port-to-port service to a river elevator or other unloading facility which has a rail connection for the subsequent reshipment of that grain. Nothing more was shown in *Mechling*[11] or exists at Memphis, and, in our opinion, nothing more was intended by Congress in amending section 3(4) of the act.[12]

The contention has been advanced by the intervening railroads that before relief can be granted there must be either a finding by the Commission that through barge-rail routes exist via the Tennessee River ports or a finding under section 15(3) of the act that the public interest requires that they be established. Section 6(11)(b) of the act, which authorizes the Commission to establish proportional rates, imposes no such requirement. Moreover, the decision in *Dixie Carriers* establishes that if relief is necessary to cure a discrimination against water transportation in violation of some other provision of the act, there is no necessity for a finding of public interest under section 15(3). If such discrimination exists, the Commission has a duty to cure it. As stated in *Dixie Carriers:*

"The public interest, as defined in the Act, is the guide to the Commission's action. *McLean Trucking Co.* v. *United States,* 321 U.S. 67, 82. The policy is to preserve all the 'inherent advantages' of the water carriers" [351 U.S. at 60–61].

The contention has also been advanced that the plaintiffs are not entitled to relief from the discriminatory rate structure they have attacked because they

[10] The Supreme Court in *Mechling* held that a showing of additional costs on ex-barge traffic was necessary to justify a differential between ex-barge and ex-rail charges. The railroads submitted cost evidence in this proceeding in an attempt to justify such a differential but the Commission rejected this evidence. See also *Tennessee Valley Authority* v. *United States,* 96 F. Supp. 409 (N.D. Ala., 1951).

[11] In its report in *Mechling* the Commission described the barge movement as follows:

"On grain, the barge carriers perform very little terminal service, such service consisting merely of placing the empty barge under the marine leg of the elevator at the river origin and the loaded barge under the marine leg of the terminal elevator at the gateway. Federal has a terminal at Chicago where it can transfer the products to cars. It can transfer grain from barge to cars at this terminal by means of clamshell, but is never called upon to do so. Mechling handles bulk grain only and does not own or operate a terminal or other transfer facility at Chicago. Thus, the barge service under the grain rates consists solely of towing the loaded barge from point of loading to point of unloading" (*Grain Proportionals, Ex-Barge to Official Territory,* 262 I.C.C. 7, 19 (1945)).

[12] Congress, in the Transportation Act of 1940, amended section 3(4) of the preexisting act specifically to include water carriers such as Arrow within the definition of connecting carriers. Section 3(4) now reads as follows:

"All carriers subject to the provisions of this chapter shall, according to their respective powers, afford all reasonable, proper, and equal facilities for the interchange of traffic between their respective lines and connecting lines, and for the receiving, forwarding, and delivering of passengers or property to and from connecting lines; and shall not discriminate in their rates, fares, and charges between connecting lines, or unduly prejudice any connecting line in the distribution of traffic that is not specifically routed by the shipper. As used in this paragraph the term 'connecting line' means the connecting line of any carrier subject to the provisions of this chapter or any common carrier by water subject to chapter 12 of this title" (24 Stat. 380 (1887), as amended, 49 U.S.C. § 3(4) (1952)).

have not expressly sought joint rates with the railroads, but have merely stated their prayer for relief in general terms.[13] Here again the Commission has failed to recognize the duties imposed upon it under the Act. While this court will not prescribe the manner in which the discrimination is to be eliminated by the Commission, it is clear that if the Commission deems the establishment of a joint rate for the barge-rail movement rather than ex-barge proportionals to be the appropriate means for ending discrimination, it "has a duty * * * under § 307(d)" to prescribe a joint rate at a level that will preserve intact the "inherent advantages" of water transportation (*Dixie Carriers* v. *United States*, *supra*, at 60).

The argument is also made that the existing all-rail rate structure is a finely balanced arrangement under which all producers, markets, and processors have available equal freight rates. It is argued that to grant the relief requested in this case will disrupt the existing rate structure by accentuating the movement of grain on the Tennessee River to the detriment of those interests which cannot take full advantage of the reduced transportation charges made available. The short answer to this argument was made by the Supreme Court in *Mechling*, as follows:

"The possibility of such a disruption does not remotely justify discriminations against barge traffic which actually deprive shippers and the barge companies of the inherent advantages of water transportation guaranteed to them by Congress" [330 U.S. at 580].

When Congress authorized the building of a modern navigable channel in the Tennessee River, it meant for that river to be coordinated with the existing transportation system so as to make its full benefits available to shippers. The Commission has a positive duty to prescribe rates for ex-barge grain which will accomplish that end. Whether the rates are published as proportional rates or as joint rates, the charges paid by the shipper for the movement of ex-barge grain beyond the ports must be on a level which preserves intact the savings on the water leg of the journey, at ports where the inbound and outbound rail carriers are the same, as well as at ports where the inbound and outbound rail carriers are different. The Commission cannot apply the standards applicable to a local movement in determining the reasonableness under section 1 of the ex-barge rates. Likewise, it is prohibited by section 2 from permitting the discrimination between shippers which would result from charging higher rates for the outbound movement to the shipper who receives his inbound grain by barge than apply to the shipper who receives his inbound grain by rail. We construe the Supreme Court decisions in *Mechling* and *Dixie* as making unlawful any ratemaking device which deprives barge transportation of its rightful place in the National transportation system or which deprives shippers of any part of the economies resulting from the use of barge transportation. We hold, therefore, that the Commission cannot lawfully approve any system of ex-barge rates on grain which deprives shippers of any of the savings of the inbound barge transportation but must prescribe ex-barge rates which will fully preserve the inherent advantages of such barge transportation.

In conclusion, we would be remiss in our duty if we did not take note of the fact that for over eight years plaintiffs have been seeking relief in this proceeding from discriminatory rail rates which we find are in violation of the Interstate Commerce Act. Section 10(e) of the Administrative Procedure Act provides that the reviewing court "shall compel agency action unlawfully withheld or unreasonably delayed." It is the opinion of this court that the present case is an appropriate one for application of this statutory provision, and that the plaintiffs are entitled to prompt relief from the discriminatory rates presently in effect. The case is therefore remanded with instructions to the Commission to enter an order prescribing lawful, reasonable, and nondiscriminatory rates

[13] The original complaint before the Commission to which Arrow was a party contained the following prayer for relief:

"Wherefore, complainants pray that defendants be required to answer the charges herein; that after due hearing and investigation an order be made commanding said defendants and each of them to cease and desist from the aforesaid violations of said Act, and establish and put in force and apply in the future to the transportation by rail of ex-barge grain between the origins and destinations named or described in paragraphs IV, V, and VI hereinof, in lieu of the rates presently maintained, such other rates as the Commission may deem reasonable, just, nonpreferential, nonprejudicial, and nondiscriminatory, and that such other and further order or orders be made as the Commission may consider proper in the premises."

on ex-barge traffic from the Tennessee River ports to destinations in the Southeast in conformity with this opinion.

This the 20th day of July 1959.

RICHARD T. RIVES,
Circuit Judge.
SEYBOURN H. LYNNE,
District Judge.
H. H. GROOMS,
District Judge.

IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ALABAMA, NORTHWESTERN DIVISION

CIVIL ACTION NO. 961

Arrow Transportation Company, et al., Plaintiffs, vs. *United States of America*, Defendant, and *Interstate Commerce Commission, et al.*, Intervening Defendants

Filed in Clerk's Office Northern District of Alabama, July 20, 1959. William E. Davis, Clerk, U.S. District Court.

ORDER

This cause came on to be heard before a court of three judges convened pursuant to the provision of section 2284 of Title 28 of the United States Code, and the case having been submitted to the court for final judgment, and the court having this date entered an opinion herein,

It is, therefore, ORDERED, ADJUDGED, AND DECREED by the court as follows:

1. The order of the Interstate Commerce Commission entered March 24, 1959, in the proceeding entitled *American Barge Line Co.* v. *Alabama G.S.R.R.*, ICC Docket No. 30744, insofar as it reaffirmed and incorporated by reference the findings of the Commission in its orders of July 18, 1955, and March 19, 1958, in the same proceeding, which dismissed that portion of the complaint which attacked the lawfulness under sections 1, 2 and 3(4) of the act of the ex-barge rail rates on grain and grain products from the Tennessee River ports of Decatur, Sheffield, and Guntersville, Alabama, and Knoxville and Chattanooga, Tennessee, to destinations in Southern Classification Territory, be and the same hereby is set aside, annulled and forever enjoined.

2. This cause is hereby remanded to the Interstate Commerce Commission for further proceedings in accordance with the opinion of this court filed herewith, and the Commission is hereby ordered and directed to order, as promptly as possible, the establishment of lawful, reasonable, and nondiscriminatory ex-barge rail rates on grain and grain products from the Tennessee River ports of Decatur, Sheffield, and Guntersville, Alabama, and Knoxville and Chattanooga, Tennessee, to destinations in Southern Classification Territory.

Done, this the 20th day of July, 1959.

RICHARD T. RIVES,
Circuit judge.
SEYBOURN H. LYNNE,
District Judge.
H. H. GROOMS,
District Judge.

APPROPRIATION FINANCED BUDGET ITEMS

KINGSTON STEAMPLANT

Mr. RABAUT. On your Kingston steamplant, units 1 to 9, you programed no funds for the appropriations finance budget?

Now you show costs of $1,478,000 in fiscal year 1960, and $1,207,000 in 1961.

Why is that?

Mr. VOGEL. The 1959 estimate of $7,013,000, which was included in the President's budget for 1960, assumed installation during the

year of electrostatic precipitators for those nine Kingston units that you make mention of.

Contract awards for the precipitators were made during 1959. This money was carryover money appropriated for the plant, and in the opinion of the Board, the installation of these precipitators was necessary to maintain the proper condition of the air in the neighborhood of the Kingston plant.

The installation of these precipitators is being performed during outages of the units, with resulting spread of expenditures over 3 fiscal years. This has resulted in considerable economies being effected. We have much better financial results approaching it this way.

The estimate of $1,478,000 for 1960 and $1,207,000 for 1961 that you mentioned, together with the actual requirements of $2,951,769 for 1959, makes up a total of about $5.7 million which is a decrease of $1.3 million below the $7 million estimate in the 1960 budget. This $1.3 million decrease is reflected as a reduction in the total Kingston cost estimate. So that comes down from $199.8 to $198.5. And this wraps it up.

HALES BAR DAM

Mr. RABAUT. What is the reason for the increase from $701,000 to $1,161,000 in the direct appropriation item for improvements to existing facilities.

Mr. VOGEL. $1 million of that is set up to correct leakage in Hales Bar Dam, which is an old dam, taken over originally from a private power company by TVA in its early days.

It has had a leakage problem over the years, that has become aggravated in recent years. And now something is going to have to be done to correct it.

So, of this larger figure, $1 million is for this particular activity. And that indicates——

Mr. RABAUT. This increased figure, does that make you feel that you have the total cost of this improvement or this correction. Or is this going to be something that is going to be in here for a long time?

Mr. VOGEL. We hope it won't be there for a long time. The total estimated cost—and this is, of course, an estimate of something that we don't know too much about—because when you get leakage under a dam, there are many things that can cause it—but our total cost estimate as of now is a total of $3,300,000 that it will take to remedy this defect.

Mr. RABAUT. What is the estimate?

Mr. VOGEL. $3,300,000.

Mr. RABAUT. So this is only a part of it?

Mr. VOGEL. Yes; $1 million in 1961.

PHOSPHATE PLANT

Mr. RABAUT. Please expain the need for the rehabilitation work at the Muscle Shoals phosphate plant for which you are programing $1,910,000.

Mr. VOGEL. Well, I mentioned in my opening statement that we are retiring two old phosphorus furnaces there. They have made way for a single new efficient furnace. This is what is largely involved in that figure you mentioned.

Mr. RABAUT. Last year we were told only $670,000 would be expended this year for chemical facilities. However, I note $1,055,000 is actually being spent this year, including starting construction on a phosphoric acid production unit which will cost $835,000.

I don't believe this was specifically mentioned to the committee last year. Why have you made a major change this year from the original 1960 budget plan?

Mr. VOGEL. I think I had better refer this question to Mr. Young who is in charge of that plant.

Mr. YOUNG. The phosphoric acid plants which we had been using were largely depreciated, and they were built to produce ordinary phosphoric acid. Our program has changed considerably. We are now producing superphosphoric acid. This is a new high-concentration acid developed by TVA which requires high temperatures. The original acid units would not stand these temperatures and were failing. We had to make this change in order to be able to keep our program going. Liquid fertilizer developments and the production of our new 54-percent concentrated superphosphate requires superphosphoric acid.

Mr. RABAUT. I can understand your progressive ideas. But don't you think some of this ought to have been mentioned last year to us. You come along with an idea from $670,000 to $1,055,000.

Mr. YOUNG. We did make superphosphoric acid with the original plants which had been largely depreciated at that time, but the increase in temperatures and corrosion made it imperative that we change and improve these units and build facilities which would withstand the temperatures required by the superacid. We didn't have much alternative if we are going to keep the program going.

Mr. RABAUT. Well, you had it in a sort of miscellaneous equipment figure or something like that last year. But we feel the committee ought to be kept informed of that.

Mr. YOUNG. Last year we didn't expect that those original units would fail under the conditions which existed in making the superacid.

Mr. VOGEL. It is very difficult, as you know, to anticipate plant failures.

Mr. RABAUT. I see here we have in last year's justifications, plant replacements, $205,000. And that mentions among other things in a long paragraph here phosphoric acid units and railroad facilities.

Now, that is just bringing it in, but that is about all there is to it.

Now, the committee would like to be more informed and in possession of more detail of what is going on. We would like to have information approaching a deal, not afterward.

UNOBLIGATED BALANCE

You are showing an estimate balance here of $2,411,000 to be carried into fiscal year 1961 in your direct appropriation budget.

What is your up-to-date estimate of unobligated balance?

Mr. VOGEL. Still the same figure under the 1960 estimate on page 4, Mr. Chairman, $2,411,000. There is no change.

Mr. RABAUT. Last year we didn't get an estimate. But you had $5,291,959 over.

Mr. VAN MOL. That figure of $5,291,959 is at the end of 1959, sir. And the figure of $2,411,000 is at the end of 1960.

Mr. RABAUT. At that time you estimated around $4 million, didn't you?

Mr. VAN MOL. I believe so; for the end of 1959.

Mr. RABAUT. The testimony is that is what happened. Shouldn't this be higher than $2,411,000 now?

Mr. VAN MOL. No. Because part of the unobligated balances were used in the program in 1960, therefore reducing this unobligated balance to $2,411,000.

Mr. RABAUT. Where were they used? We don't want details on it. But we just wondered whether you are underestimating carryovers?

Mr. VAN MOL. I don't think we are.

Mr. RABAUT. You don't think you are?

Fine.

CORPORATE FINANCE BUDGET

WIDOWS CREEK

In your corporate finance program last year you indicated that you would use only $39,198,000 on your Widows Creek No. 7.

Now, you are showing that you will use $47,960,000. That is why you are using that word "only" in there. It is up to $47,960,000 during this fiscal year. This looks as though your schedule slipped in 1959, and you are catching up this year.

Is that the story now?

Mr. VOGEL. I would like to call on Mr. Palo, our Chief Engineer, to state the facts in connection with that.

Mr. PALO. Mr. Chairman, I think that is exactly the situation. We are running that unit through to an operating date this fall, the same as was scheduled a year ago. I remember for last fiscal year there were large progress payments on the turbogenerator estimated to be made during the month of June, which actually did not become payable until fiscal year 1960.

Mr. RABAUT. I just want to ask you a question in view of this slip before.

Are you going to have any slips this year in which you could take a little money out?

Mr. PALO. In Widows Creek?

Mr. RABAUT. And anyplace else?

Mr. VOGEL. We never know on that, Mr. Chairman. It would be reckless for me to say there would not be. But in connection with this item to which we are now referring, Widows Creek, there is no change in the estimated date of commercial operation. This remains the same.

Mr. RABAUT. You show $12 million for unanticipated savings and slippage. Do you want to increase that?

Mr. WESSENAUER. That amount is shown as a possibility that there could be slippage or savings. The tabulation thus recognizes that possibility to that extent.

Mr. RABAUT. What about making it $15 million?

Mr. VOGEL. I think this is about as good as we ought to try for.

When you take a good many items like this, you understand that in each one you have to apply some small contingency factor. As you add them up, there is something that possibly can come out at the end but the estimates could be exceeded, too. This is pure speculation.

PARADISE PLANT

Mr. RABAUT. Your budget of last year showed no funds for the new Paradise plant, but now you indicate that you are using $15 million for it in this fiscal year. Why was this not shown in your budget last year?

Mr. VOGEL. The reason for that, I believe, Mr. Chairman——

Mr. RABAUT. It is only $15 million.

Mr. VOGEL. I think it rests upon the fact that we didn't have a financing bill at that time, and our advances into the future were, therefore, entirely problematical. Now we are able to proceed with some knowledge of the source of funds. We have actually made a start on the Paradise plant.

Mr. RABAUT. The same thing applies to this now as applied before. We want to know this stuff in advance as much as possible. I think it is the right of the committee to know.

Mr. WESSENAUER. I think you will find that last year we discussed the need for the additional capacity and the fact that with the completion of the financing bill we would have to begin work on such projects.

Mr. RABAUT. How much of this $15 million is committed?

Mr. WESSENAUER. I would say all of it.

Mr. VOGEL. I would think most of it, yes.

Mr. RABAUT. I think we ought to be kept more informed in advance. I think anybody in your agency ought to feel that way about this thing.

Mr. VOGEL. We can understand that. We appreciate it. And it certainly is our ardent desire to do that, Mr. Chairman.

However, when we have been approaching this problem not knowing what would be the fate of the amendment to the Tennessee Valley Authority Act, obviously we could not keep you completely informed on some of these things.

Mr. RABAUT. Maybe that is true. But the thing is, Mr. Chairman, the committee is very intimately connected with this activity. And this is a thing of good size. And these others that I referred to here are good size. I think the committee during the year should be notified when changes of this type come about. There ought to be a letter sent to the committee to keep us posted. It is this committee that you depend on to talk about your activities down there. And there are plenty of people that like to talk about it. So, the committee shall be informed.

Mr. VOGEL. We appreciate your interest, sir.

Mr. RABAUT. Not only the interest, but I think you should appreciate the attitude we have in asking questions about it.

Mr. VOGEL. We do.

POWER REVENUES

Mr. RABAUT. Last year you were estimating your power revenues during 1960 at $258 million. Now, you are showing a lower figure of $245 million. How do you account for this difference?

Mr. VOGEL. I would like to ask Mr. Wessenauer, who is in charge of our Office of Power, to answer that.

Mr. RABAUT. Mr. Wessenauer?

Mr. WESSENAUER. I think most of the reduction from $258 million to $245 million is entirely due to the level of business. We were more optimistic about what business conditions would be in the present fiscal year more than a year ago when we made that estimate.

Mr. RABAUT. Have you lost any major loads?

Mr. WESSENAUER. The recession did slow up the development. And there have been during the year some strikes which held down the operations of a number of our major users of power. A number of the alloy plants which supplied alloys to the steel industry were of course affected by the strike which kept their volume of use down.

We expect, however, that those loads will be picking up again, and some of them have been. But we won't be able to recover the full amount within the year.

MEMPHIS LAWSUIT

Mr. RABAUT. Last year we had some discussion about the lawsuit brought by Memphis concerning the interim TVA rates. Please bring us up to date on this subject.

Mr. VOGEL. The best man to do that is our General Counsel, Mr. McCarthy, who is handling it personally.

Mr. RABAUT. Mr. McCarthy.

Mr. MCCARTHY. That lawsuit is presently set for trial next month. I think that is about all I can say on that.

Mr. RABAUT. How long has this been waiting to go to trial?

Mr. MCCARTHY. That lawsuit was filed in the summer of 1958.

Mr. RABAUT. It is coming up next month?

Mr. MCCARTHY. Yes, sir.

PHOSPHATE LANDS

Mr. RABAUT. You are continuing to buy phosphate lands and rights looking to the acquisition of a 25-year reserve. You already have a 19-year reserve.

Whose judgment is it that a 25-year reserve is necessary?

Mr. VOGEL. This is finally the judgment of the Board of Directors, based upon staff recommendations, of course. This is in the nature of a reasonably safe reserve that we can depend on for our future operations.

Mr. RABAUT. When was that figure revised? And has it been revised upward lately?

Mr. VOGEL. Well, it was reviewed about a year ago, as I recall.

Mr. WAGNER. The 25-year estimate has been one that we have adhered to for some time. It is, among other things, related to the useful life of an operation in removing the phosphate rock in order to have a feasible operation.

Mr. RABAUT. You say it has been in vogue a long time, this idea. You already have a 19-year reserve. What is that?

Mr. VOGEL. I think that is just one step in working toward the final figure, Mr. Chairman.

Mr. RABAUT. Your ultimate goal was to get 25-year reserves? What do you base the estimate on?

Mr. WAGNER. The estimate is based essentially on the life of facilities that would be required to remove and process the ore. If you would like a further discussion of that, Mr. Young could provide it.

Mr. RABAUT. All right. You can answer that a little bit for the benefit of the record.

You can supply it for the record.

(The matter referred to follows:)

TVA FLORIDA HARD ROCK PHOSPHATE RESERVE

Phosphate is the essential raw material for the production of phosphorus for use in fertilizer and munitions manufacture. It is found in nature as rock, pebbles, and sand in three principal areas of the United States—Tennessee, Florida, and in the West. In order to have an assured supply of phosphate for experimental fertilizer production and for munitions, TVA in 1936 began the acquisition of reserves in the State of Tennessee. About two-thirds of the tonnage in this reserve is not of a high enough grade to be used as an electric-furnace charge as mined.

However, Tennessee phosphate matrix makes a suitable furnace charge when enriched with high-grade phosphate from Florida, a practice now followed by TVA. This makes possible the more efficient use of the TVA reserve and greatly extends its life. It also makes it feasible to retain for use in national emergency a part of the remaining high-grade Tennessee phosphate owned by TVA.

To prevent the disruption of TVA's operations in the event normal purchases from commercial miners in Florida becomes difficult for reasons of quantity, quality, or price, TVA in 1955 began the purchase of a reserve in the Florida hard-rock phosphate field.

Long-term plans are for a 25-year reserve, based on the use of 131,000 long tons of Florida hard-rock phosphate per year (equivalent to 46,550 long tons of phosphorous pentoxide) to enrich low-grade Tennessee phosphate and provide for other high-grade phosphate requirements at normal production rates.

A 25-year reserve has been determined as a reasonable objective because that period is considered a minimum time during which to depreciate any onsite facilities needed in mining and processing the raw rock. To install such facilities without the expectation that their normal useful life could be realized would be uneconomical.

How much of this phosphate material is necessary for munitions?

Mr. VOGEL. Well, that is very difficult to say, because it would depend entirely upon the urgency that might arise in the future.

Mr. RABAUT. But you have to base it on something. Aren't you buying phosphate at the present time from commercial sources?

Mr. VOGEL. Yes, sir.

Mr. RABAUT. Won't you continue to do that for a number of years?

Mr. VOGEL. Yes, sir. As long as we can, we will continue doing that. These lands provide only a reserve for the future——

Mr. RABAUT. Are they an ace in the hole, so to speak?

Is that the idea of these lands?

Mr. VOGEL. This relates to a national necessity, yes, sir.

Mr. RABAUT. Do you have any indication that a condition may arise that you wouldn't be able to buy phosphate?

Mr. VOGEL. We have approached this question in our minds over a period of time. Recently—I am trying to recall the date—but not too long ago, we did receive only one bid in response to invitations, which was indicative of weakening of the market and raised questions as to our being able to take care of our requirements.

Mr. RABAUT. Was it a weakening or some type of collusion?

Mr. VOGEL. I would doubt that it was anything except an inability of other firms to respond to the invitation at the time, sir.

Mr. RABAUT. Was it a substantial amount that you were asking for?

Mr. VOGEL. I would like to refer that to Mr. Young.

Mr. YOUNG. We experienced difficulty in getting phosphate during the war. At times we have only received one suitable bid on phosphate.

Mr. RABAUT. How recently have you only received one bid or an indication that there might be an indifference to the supplying of this phosphate?

Mr. YOUNG. This occurred as recently as last year.

Mr. RABAUT. How recently have you purchased any phosphate?

Mr. YOUNG. We are purchasing phosphate right along.

Mr. RABAUT. You don't have any trouble now?

Mr. YOUNG. That is right.

Mr. RABAUT. You have competitive bids for it?

Mr. YOUNG. That is right.

Mr. RABAUT. How is the price?

Mr. YOUNG. The price at the present time is staying fairly firm, but it could of course change. We need this reserve so as to have an assured supply in the future.

Mr. RABAUT. In other words, they know you have this reserve?

Mr. YOUNG. That is right.

Mr. RABAUT. There is something that came up a few minutes ago that I want to talk about.

ADVERTISING TVA AREA

Who is this man George L. Benedict, Jr., in Tennessee?

Mr. VOGEL. The name is unfamiliar to me.

Mr. RABAUT. Well, this is a letter. I don't know that I want to put this in the record. But you can put it down.

Here is a letter on the State of Tennessee stationery——

Mr. WESSENAUER. He may be their new industrial planning man in the State office.

Does he have a title signed on that?

Mr. RABAUT. Yes; assistant commissioner.

Now, he has written a letter here to the president of the Universal Engineering Co., 126 North Main Street, Frankenmuth, Mich.:

> Over the past year we have received a number of inquiries from manufacturers in the Detroit area asking about site possibilities in Tennessee for the establishment of branch operations. To meet with these industrialists, a group of Tennessee businessmen representing manufacturing, banking, utilities, and government is planning to be in Detroit during the week of May 25 to the 29th. We will have headquarters at the Sheraton-Cadillac Hotel and will be happy to talk with or furnish data to officials of any other interested companies. Should your company have any interest along these lines, we would be pleased to hear from you in order to arrange mutually convenient appointments for one of these Tennessee representatives to meet with you.
>
> Naturally such discussions would be treated as entirely confidential by us.

That is only one. There are some others. It has been going on for several years.

(Letters referred to follow:)

BUSINESS & PROFESSIONAL MEN'S ASSOCIATION,
INDUSTRIAL DEVELOPMENT DIVISION,
Savannah, Tenn., August 23, 1958.

Mr. A. G. NANCARROW,
President, Universal Engineering Co.,
Frankenmuth, Mich.

DEAR MR. NANCARROW: Wouldn't you like to move your plant to sunny Tennessee where the climate is ideal and the working conditions are excellent, where there is no labor unions (in Savannah) and the workers are contented, giving a full day's work for a day's pay.

Mr. Nancarrow, please do not throw the enclosed brochure away without first reading it carefully. You no doubt have read lots about the conservative South and this is true, especially in its attitude towards industry in general.

Won't you please call us collect for further information, or an appointment?

Yours very truly,

MASSEY BOAZ, *Secretary.*

P.S.—Oh yes, we forgot to mention in our brochure that the State of Tennessee does not have a State income tax and we can also give new industry tax relief in many, many ways.

TENNESSEE DEPARTMENT OF CONSERVATION AND COMMERCE,
DIVISION OF INDUSTRIAL DEVELOPMENT,
Nashville, Tenn., May 13, 1959.

Mr. A. G. NANCARROW,
President, Universal Engineering Co.,
Frankenmuth, Mich.

DEAR MR. NANCARROW: Over the past year we have received a number of inquiries from manufacturers in the Detroit area asking about site possibilities in Tennessee for the establishment of branch operations.

To meet with these industrialists, a group of Tennessee businessmen, representing manufacturing, banking, utilities, and government, is planning to be in Detroit during the week of May 25 to May 29. We will have headquarters in the Sheraton-Cadillac Hotel and will be happy to talk with, or furnish data to, officials of any other interested companies.

Should your company have any interests along these lines, we would be pleased to hear from you in order to arrange a mutually convenient appointment for one of these Tennessee representatives to meet with you. Naturally, such discussion would be treated as entirely confidential by us.

Hoping to meet with you soon, I remain,

Sincerely yours,

GEORGE L. BENEDICT, JR.,
Assistant Commissioner.

Mr. RABAUT. Now, some of the members of Congress from Tennessee have actually expressed to me a deep concern about these types of letters and this type of approach. It is a sort of one State going against another and seeking to set out advantages that the whole Nation is paying for, with an idea to be of assistance to the Nation.

I don't suppose it is within anybody's prerogatives to be able to stop it. But it doesn't seem in good taste when other people are supporting TVA for them, and some of their best friends have been doing it for them.

I have talked to the Members of Congress from the State. And they have expressed considerable concern about it.

Joe is here. And I think Joe knows about it as well as I do. Some of them talked to them.

But right after we talked to them last year—I think it was last year or the year before—the very same performance was rehearsed. It is not helpful to the situation. The story of it is being told by the people who are most concerned about this situation better than

could be told by them in their articles in some of the magazines of the country.

In fact, we had a copy of some of the magazines at one time that were making quite an attack on the whole situation.

I mention it for the purpose of letting them know that this proposition might not be favorably looked upon by some people who thought TVA was a good thing nationally.

It seems to be the sort of activity that might better speak for itself.

Mr. VOGEL. Mr. Rabaut, our innocence as an agency of any connection in this activity, I think, is established by our previous indication of complete lack of knowledge of this man.

Mr. RABAUT. I understand that. But indirectly you could be severely affected.

Mr. VOGEL. I regret that very much. I am sure all of our agency would.

It seems this is a matter that should be taken up with those concerned with it. I can assure you we haven't had any connection with it nor have we acted as instigators in any way.

Mr. RABAUT. I believe you. But we have tried to approach it through the proper channels. And it hasn't worked too well.

Mr. VOGEL. It would seem to me that this is something that perhaps the Members of Congress from Tennessee could take up with the State officials very properly.

Mr. RABAUT. I have got a whole file on it here.

That is the only letter I happened to pick up.

I think something should be said about it.

Mr. Evins?

Mr. EVINS. I have no questions at this time. I might make a couple of observations.

One is that the Chicago Tribune had editorials following the St. Lawrence Seaway development that Chicago was going to be the greatest city in America in 15 years, with oceangoing vessels coming down the St. Lawrence through the Great Lakes into Chicago making Chicago virtually a port city, a seaport. So it is practically impossible to keep any State chamber of commerce from bragging about their assets.

They are very proud of the great St. Lawrence Seaway development there. It is a great thing for America.

We helped put over the upper Colorado River storage project for which we have just reviewed the budget. A little comment I didn't make at that time but I think it is appropriate to make it now: We went over the justification for the Corps of Engineers of the United States by river basins—the New England Basin, the upper Mississippi, the lower Mississippi, the South Atlantic, and the Missouri, the Columbia River Basin, the Colorado Basin, and when they came to the Tennessee Basin, they said no justification, Tennessee Basin, no requests, no funds, no studies, no plans, no moneys.

So the Corps of Engineers didn't request a dime for expenditures in their budget. That might well be mentioned at this time.

I was interested in what Mr. Jones said regarding the salability of the bonds and the marketability of the bonds.

I have seen in the New York Times and the other financial papers that the bonding agencies will buy these bonds quickly, rapidly. They will be gilt edged. They will be paid off.

It is pointed out in the budget that TVA this year is going to pay back into the Treasury $49 million from power, and $2 million from nonpower operations, or a total of $51 million to be paid back into the Treasury. Those are very significant figures. And not many agencies are making the contribution that it is to the country and also paying back to the Treasury in such enormous amounts. They have presented an interesting budget here. I have no questions, Mr. Chairman.

Mr. RABAUT. Thank you.

Dr. Fenton.

Mr. FENTON. I think that this Tennessee Valley Authority and the Tennessee Valley people have done a remarkable job. I have said that all the time. There is no question about that fact.

And the people should be proud of the work that has been done there.

And the representatives from that State have done a fine job. And they are all fine fellows.

And I want to say that I think that they individually, if you asked them, as you say you have, would resent such goings on as have now been brought out. I have said over the years that I don't think their advertising is fair to the people of the North. I am glad you brought that letter out, because it substantiates everything I have been saying.

That is just a small segment of the protests that we hear about. It is pretty generally known through the North that that has been going on.

Of course we have protested to you people about this. And I protested and sent samples of the advertising to Mr. Jones. And all I get is this sort of a brushoff on the thing. I don't know what you have done about it. But if the authorities of the State of Tennessee would know those things, I think maybe proper action could be taken there.

Mr. VOGEL. Doctor, these accusations are embarrassing to us, I can assure you. But I certainly should assure you at the same time that I don't see there is anything that we personally can do about this. This is not a TVA matter. And furthermore, I think that our traditional role should be that of not meddling with State affairs. This is something, I think, that could very properly be taken up with the Governor or State officials.

But I would certainly hesitate to use my position to try to tell the Governor of any State what I think he ought to do. I believe you would agree with that.

Mr. FENTON. Well, your chief attorney has just talked about a lawsuit about possible discrimination of people in that area on railroad rates, and so forth.

Mr. VOGEL. I think that is a great deal different than trying to use a Federal agency to meddle with the State authority, however.

Mr. FENTON. Well, you are certainly discriminating against people in the North when this kind of thing is permitted. And as I say, I have always told my people up there what a great job you have done: that you should be proud of it down there.

But I do think the time has come when a little reevaluation is in order to find out whether they are in the same economic status now as they were in 1933.

That is the only thing I have to say about the matter.

Mr. RABAUT. Mr. Pillion.

Mr. PILLION. To pursue the subject raised by the gentleman from Tennessee, the chairman here, with respect to competition for industry, the chairman's letter referred to Government employees also participating in this business-getting effort in Detroit. Does that include any of the employees of the TVA?

Mr. VOGEL. I am sure it does not, Judge.

Now, if in any case State officials have requested information, we would, of course, have supplied that information, but it would not have been with the intent of aiding and abetting this kind of a program.

Mr. PILLION. I see. Well, I can very well appreciate that each State has a commerce department who is attempting to get business and advertises its advantages, and there is nothing that any of us can do about that. That is a State function, I presume.

However, if the TVA were to program a certain amount of its moneys for that purpose, it may be subject to criticism. That is what I am trying to get at.

Is there any fund or any moneys set aside for use by the TVA in this direction for that purpose?

Mr. VOGEL. No, sir; there is not.

PUMP-BACK POWER

Mr. PILLION. Now, how much of your power is hydro and how much of your power is thermal?

Mr. VOGEL. Approximately 3 million kilowatts is hydro. We now have a total of a little over 12 million. So, roughly, you can say one-fourth is hydro and three-fourths is thermal.

Mr. PILLION. I see.

Now, the gentleman from the Southwestern Power Administration testified here a couple of weeks ago. And they raised a very interesting question of using their thermal power to pump water during the off hours into storage reservoirs and then used them for that time of the day when the need for power is the greatest. And that would bring a return of roughly $3 for each dollar spent.

Have you made a study of that type of operation for the TVA? Is there any possible information on that?

Mr. VOGEL. We have one installation on the Hiwassee River where we have a pump turbine. Of course, this is not a way of getting something for nothing; that is to say, of creating energy in excess of that which is put into it. It is merely a means of using cheap power to produce more valuable power. And we are doing this at one installation where we have found it practicable on the Hiwassee River at Hiwassee Dam.

Mr. PILLION. Well, have you made a survey to determine whether you have sites that would be adaptable for additional installations such as that?

Mr. VOGEL. I think it would have a relatively limited applicability to the rest of our system. I am sure all of these problems are being continually studied as they might be applied successfully.

Mr. WESSENAUER. I might state that that idea is one that is getting greater interest throughout the country than it has heretofore.

I think there is one in Missouri that is being pushed by the Union Electric Co.

Mr. PILLION. Well, the Administrator of the Southwestern Power Administration was quite optimistic about developing that type of power operation. It leads off into a future field that could be profitably used.

Mr. WESSENAUER. You are familiar wtih the one, of course, at Niagara Falls?

Mr. PILLION. That is right. They are using that with land of the Tuscaroras. That is why they wanted that land. I think the general would be familiar with that. He spent many years up there doing a fine job.

BOND ISSUE

I came in a little late. But do I understand that you now have authority to issue $750 million worth of bonds for capital construction purposes?

Mr. VOGEL. Yes, sir, we do have. For power.

Mr. PILLION. And that you intend to issue something like $115 million this coming year?

Mr. VOGEL. That is the present estimated need, yes, sir.

Mr. PILLION. Now, is the law flexible so far as your sale of these bonds by either competitive or negotiative sales are concerned?

Mr. VOGEL. We think that it is. We have given considerable study to this matter, but we have not arrived at an announced decision.

Mr. PILLION. I do hope you will use the method of competitive bidding wherever possible, because it is easy to fall into an abuse of power where you work out a negotiated situation.

The gentleman from the staff here has called my attention to this language:

> The corporation may sell its bonds by negotiation, or on the basis of competitive bids, subject to the right, if reserved, to reject all bids.

Mr. VOGEL. In all these matters we are proceeding cautiously, carefully, and in full consultation with officials of the Treasury who are well aware of all we are doing. We are in close contact.

TRANSMISSION LINE CAPACITY

Mr. PILLION. What is the highest voltage you have on any of your transmission lines? And what is the longest transmission you have of power?

Mr. WESSENAUER. Our top voltage is 161,000 volts. And I think the longest—well, I will put it this way:

Our line from Pickwick over to Memphis is about a hundred miles; I think that is the longest.

Mr. PILLION. I understand the Russians now have high voltages of somewhere around 400,000. How do they accomplish that?

You wouldn't need that with that short range?

Mr. WESSENAUER. Well, sir, we are exploring the possibility of needing a higher voltage. We face the problem of carrying greater quantities of power even short distances; having so many lines that one has trouble getting adequate right-of-way for enough of them. We have been studying the possibility of going as high as 460,000 volts.

We are building a short section of 5 miles with towers designed for that voltage, although we will not operate at that voltage, in order that we might get experience in design and construction of such facilities.

It is a pure question of economics. And usually the short distance does not lend itself to going to that high voltage.

POWER SALES

Mr. PILLION. How much of the 12 million capacity in kilowatt capacity is sold to the Federal Government?

Mr. VOGEL. Well, I would say earmarked as capacity to serve those needs is about one-fourth. But actually measured in kilowatt-hours, 50 percent of our power is used by the Government. That is, close to 50 percent of the power generated is sold to the Government.

Mr. WESSENAUER. General, I think your first figure would be nearer one-third than one-fourth.

Mr. VOGEL. I am sorry. I misspoke.

Mr. PILLION. At what comparative price do you sell to the Federal Government as compared to the aluminum companies or private industry or whoever receives your power?

Mr. WESSENAUER. The price to the AEC, which is our largest user, averages around 3.8 mills per kilowatt-hour. The large aluminum producers will be paying almost 4¼ mills a kilowatt-hour.

Mr. PILLION. What does the Federal Government pay?

Mr. WESSENAUER. The AEC pays around 3.8 mills.

Mr. PILLION. Is that by contract? Or is that the reservation of some kind by law?

Mr. WESSENAUER. No. It is by contract and was based on a study of the costs involved in connection with the facilities provided to supply the power.

Mr. PILLION. Then, as I understand it, the Federal Government receives roughly between 45 and 50 percent of its power; is that right?

Mr. WESSENAUER. Yes, sir.

Mr. PILLION. So that, then, whatever subsidy is being granted to the TVA or the taxpayers at large, actually inures to the benefit of the people at large by reason of 50 percent of the power being sold to the Federal Government at a fairly low rate; is that right?

Mr. WESSENAUER. Whatever advantage there is, the Federal Government gets half of it.

INTEREST RATES

Mr. PILLION. What is the interest rate that is being paid to the Federal Government now?

Mr. WESSENAUER. The interest rate or dividend payment will start on July 1, and it will depend on what the average interest cost on the Government's marketable securities will be as of June 30. At the present time it is over 3½ percent. The dividend is not being paid this fiscal year, but it will start, under the new law, next July 1.

Mr. PILLION. Is this a varying rate?

Mr. WESSENAUER. It will vary each fiscal year depending on what the rate is at the beginning of the fiscal year.

Mr. PILLION. What is the rate for Government bonds?

Mr. WESSENAUER. On all the Government's marketable securities?

Mr. PILLION. Bonds and notes.

Mr. WESSENAUER. Bonds and notes.

Mr. PILLION. That is roughly 3½ percent?

Mr. JONES. 3.57 at the end of January.

Mr. PILLION. Who makes that determination?

Mr. WESSENAUER. That comes from the Treasury report.

Mr. PILLION. It has a formula of its own?

Mr. WESSENAUER. It is published every month by the Treasury and set out specifically.

Mr. PILLION. Of course, the difference being that the composite average rate is dependent upon short money notes, and short-term money; whereas, actually, the money here is 50-year money or so, and that the price for the long-term bonds such as that would be a great deal higher than the 3.5?

Mr. WESSENAUER. I think the cost of short-term money being well over 4 that it would bring the average up.

Mr. PILLION. Actually the Federal Government cannot sell 50-year bonds; can it? In fact, it has been the policy of the Federal Government to stretch out the maturities of our big debt. And they are unable to do. And their program to do it has been a complete flop; isn't that true?

Mr. WESSENAUER. I don't want to get into that phase of it.

Mr. PILLION. I am sure the Secretary of the Treasury would admit it is true.

Mr. KAMPMEIER. I think it is interesting to note that during the period when most of the appropriation investment was being made in TVA there were no long-term bonds being sold by the Treasury.

Mr. RABAUT. We will adjourn until 2 o'clock.

FEDERAL PARTICIPATION IN ECONOMIC DEVELOPMENT

Mr. CANNON. Mr. Pillion.

Mr. PILLION. Mr. Chairman, I was somewhat intrigued and interested in a statement made here, I think, by one of the Commissioners to the effect that it was the recognized policy of this Authority, the statement being this, that each region is entitled to its share of the growth power or of the economy, or words to that effect. What was that statement again? Could someone recite it to me? I think the missing member of the Board of Directors is the gentleman who made that statement.

Mr. VOGEL. It was perhaps Mr. Hays. I do not believe I could quote the statement for you.

Mr. JONES. General, I think I can restate what Mr. Hays said in that regard. His statement was essentially that he did not think that the pirating of industry from one State to another was proper, but that he felt that each area should participate in the growth of the economy.

Mr. PILLION. And that that growth should be subsidized, to use the word again, or financed by the Federal Government?

Mr. JONES. I do not believe he made that——

Mr. PILLION. I imagine that is the assumption.

Mr. JONES. I do not believe he made any comments with regard to the Federal participation.

Mr. PILLION. I was just getting around to the idea that this philosophy sounds somewhat familiar to me, that is a rephrasing of the fal-

lacy of Marx and Engels and Lenin and Stalin and Khrushchev, the philosophy of socialism. Each person is entitled to so much regardless of whether he works or does not work or whether he creates anything or does not create anything. I am afraid that is a rephrasing of that exact philosophy. It may not be recognized as such in a very nice high lofty sort of statement, but when you dig down into it, it is exactly the same philosophy. And I wondered how this Board could adopt that thinking without going into it just a bit further.

Mr. VOGEL. I do not believe that, certainly in the context to which you refer, Mr. Pillion, that would even closely approximate any thinking of the Board. As for Mr. Hay's statement, I think it would be better and fairer if we could wait until he returned to let him answer this question.

Mr. PILLION. Yes; I would like to very much because, in essence, it is very much the Socialist philosophy in spite of the gentleman's smiles there. It is exactly that.

Mr. JONES. I do not wish to try to put words in Mr. Hay's mouth.

Mr. PILLION. To me it is not a humorous matter. It is a very serious matter.

Mr. JONES. Indeed it is a very serious matter, and I would not want to try to put words in his mouth, but I am sure he was thinking of the progress and growth of the economy within the American system.

Mr. PILLION. Of course, when you get down to a question, what is the American system? There is considerable difference of viewpoint, I am sure, both on this committee and throughout the Nation.

COST OF PRODUCING POWER

Now, Mr. Director, you referred to the TVA as being low-cost power. Now you did not mean by that that the TVA by itself, the method that you use, the engineering and the operation that you have is, in essence, a low-cost power production; do you?

Mr. JONES. Yes; indeed I do.

Mr. PILLION. You do. I see.

Now, actually the energy created by the fall of power is independent of who operates it, whether it is the TVA or Niagara Mohawk Corp. or myself; is that not true?

Mr. JONES. Well, sir, the energy that is in the water equates——

Mr. PILLION. That is the inherent energy or the place energy as converted by its fall in nature.

Mr. JONES. Yes; given by nature, and the conversion of it can be economically done or wastefully done.

Mr. PILLION. That is right. Now we come to that, so that the mere fact that the TVA operates a situation is not from the engineering or economic point of view a low-cost power production, is it?

Mr. JONES. We think that efficiency makes that a good economical operation; yes.

Mr. PILLION. We come to that then. Let us put it this way. It does not make any difference who builds your dam, whether it is built by a private concern or whether it was built by the TVA so far as the energy is concerned that it will free, does it? It is the same energy no matter who owns it or who builds it.

Mr. JONES. Certainly, we have no corner on the physical laws.

Mr. PILLION. That is right, and the fact that you are able to produce power at, say at 3.7 mills, stems a great deal from the fact that the dams were built in a period when the value of the dollar was high.

Mr. JONES. Yes.

Mr. PILLION. So you have low construction costs.

Mr. JONES. That is right.

Mr. PILLION. So you do not want to say that that was due to your administration, do you?

Mr. JONES. That particular item, no.

Mr. PILLION. That is right, so the big part of your cheap rate, not low cost, low rates, low prices is due to that. Your cost is an altogether different item, so that a great deal—if you had to replace those dams today at today's price, you could not produce what you termed the low-cost power that you have, could you?

Mr. JONES. No; there would be a difference in our cost.

Mr. PILLION. That is right.

Mr. JONES. That is only one of the elements.

Mr. PILLION. That is right; so that in large measure then, you are entirely dependent upon the cost of the construction at the time it was built, the value of the dollar.

Mr. JONES. To a measure, but that is a relatively small measure now.

Mr. PILLION. Now let me see if it is a small measure. Let us look into that. Actually, your costs have gone up, practically double, have they not, or tripled from the time that most of your dams were built?

Mr. JONES. I would have to ask someone else to explain the actual difference in costs. The value of the dollar has gone down approximately half.

Mr. PILLION. It has gone down half in the last 10 or 12 years, has it not? Some of this was built 20 or 30 years ago.

Mr. JONES. The last dams were built, I believe, in 1942.

Mr. PILLION. If there is 100- or 200-percent differential in cost, would you say that is a small item, Mr. Commissioner?

Mr. JONES. In the overall picture it is.

Mr. PILLION. Your interest is your greatest item. If you have 200 percent differential, I would hardly call that minor. I cannot think of anything of greater magnitude in the costs of power, in the costs of construction, 200 percent differential.

Now, Mr. Director, what is a private concern having the same kilowatt capacity? What would be a comparable company in the private field? Niagara Mohawk, Consolidated Edison, Pacific Gas & Electric?

Mr. VOGEL. Would you like me to answer that? There is none. This is by all odds the largest power-producing agency in the United States.

Mr. PILLION. If you take enough private companies throughout the country to make up the same size as your company, TVA, 12-million-kilowatt capacity, and you added all the local taxes, school taxes, village taxes, county taxes, city taxes, State taxes, real estate taxes, corporation taxes, unemployment and all the other taxes that they

have, and you added that to your operation, if you took Federal tax, add it to your operation, would that be a major or minor item?

Mr. VOGEL. Mr. Pillion, you, of course, imply that TVA is not paying the same things. That, of course, is not true because we are paying, we are making in lieu of tax payments——

Mr. PILLION. I am understanding of the lieu of taxes. I just want to get a comparable measurement. In lieu of taxes does not compare to actual taxes.

Mr. VOGEL. It will compare exactly to taxes of a similar nature as applied by States and counties and municipalities because our distributors are also making these payments. I think you will find, and the record will show, that the in lieu payments made by the Tennessee Valley Authority and its distributors are well within the range of taxes paid by all private companies. Now, obviously, when you bring up the matter of a Federal income tax, we are not paying that, nor are we working primarily for a profit on which you would pay such a tax, nor would it be entirely proper for an owner to pay taxes to himself. But I think in all fairness that you will find that we are paying these things which are equivalent to school taxes and other things, and a great deal of the support of local government services in the valley is derived from these payments.

Mr. PILLION. I cannot dispute the statement the gentleman makes, excepting that I would certainly make that subject to my own study of the proper items to go into it, and make the proper comparison.

Mr. VOGEL. I think your line of questioning is directed——

Mr. PILLION. I am trying to show this is not a low-cost project. It may be low-priced power, but there is a difference.

Mr. VOGEL. We have never made any bones about pointing to the fact that the dams were constructed in a period of low-cost money.

Mr. PILLION. That is right.

Mr. VOGEL. And I think that that reflects on the foresight of those people who conceived this act, that they were able to take advantage of that situation to provide a base of hydropower which served until such a date as the technique of steamplant design had progressed that we were able to build steamplants much more efficiently. We benefit, of course, by that advance in engineering technique in recent years so much that, in fact, our newest plants will generate a kilowatt-hour of electricity with much less coal than previously.

TAXES

Mr. PILLION. Now to get back to that subject and to get back to the very broad generalization made here, I have before me a sheet supplied by a member of the staff showing the amount paid in lieu of taxes, State and local taxes, by the TVA. In 1946 TVA and distributors combined was 0.74, investor-owned utilities for this same calendar year was 2.12. In other words, the State and local taxes by investor-owned utilities was just three times that of the TVA.

Mr. JONES. Does not the private figure include income tax?

Mr. PILLION. Pardon me?

Mr. JONES. Does not the private figure include income tax?

Mr. PILLION. I think it does, yes, sir, we were just told that here.

Mr. CANNON. If the gentleman will permit, I would like to insert, if there is no objection——

Mr. PILLION. Certainly.

Mr. CANNON. A statement issued by the Tennessee Valley Authority on the "TVA Power and Taxes." Will the gentleman proceed.

(The matter referred to follows:)

TVA POWER AND TAXES

TVA power is sold at low rates. Achievement of the lowest feasible rates was a principal objective of Congress in including power supply among TVA's duties. Another purpose was to make information about TVA rates available to the public. Questions sometimes arise about the relation between TVA rates and taxes. Facts about that relationship are summarized in this booklet. Additional copies, and information on other aspects of TVA, are available from the TVA Information Office, Knoxville, Tenn. Tennessee Valley Authority, Office of Power, June 1959.

SUMMARY

TVA is a Federal corporation which Congress established for the unique purpose of accomplishing the unified development of the natural resources of the Tennessee Valley area, in cooperation with the people and their local agencies. TVA's part in this regional program includes, along with improvement of the river and its tributary valleys, the provision of abundant electric power which it sells not for profit but to achieve widespread use at the lowest cost. With the greatly increased use of electricty it has been possible to reduce costs and, at the same time, contribute substantially to the support of local, State, and Federal Government.

During the fiscal year 1959 TVA paid $5.9 million from power revenues to States and counties in lieu of taxes. In addition, the municipal and rural cooperative electric systems that retail TVA power paid $8.9 million. The growth in these combined payments has been greater than the rate of increase in State and local tax payments by private power systems in the United States.

As a public enterprise wholly owned by the United States, TVA pays no Federal taxes. TVA power does, however, provide multi-million-dollar benefits for Federal taxpayers. These benefits arise not only from the strengthened regional economy and from large direct savings to other Federal agencies but also from net earnings for the Federal Government from TVA's power operations.

THE NATURE OF TVA AND ITS POWER PROGRAM

Any valid discussion of the revenues received by the various levels of government as a result of the TVA power program must recognize the basic differences between this program of a Federal development agency and the operations of a private power system. Comparisons which ignore the differences present a distorted picture—a picture not of TVA as it is but as it might appear if it were something else.

The unusual aspects of power supply in the area TVA serves include the following:

1. TVA is wholly owned by the Federal Government.

2. Power development is an integral part of TVA's resource development program, which also encompasses flood control, navigation, fertilizer research and development, improved farm and forestry practices, control of soil erosion, and diversification of industry, all aimed at strengthening the national defense and improving the economic well-being of the Tennessee Valley and of the Nation. Bringing money into the public treasuries is not a main purpose, but economic development does promote growth in taxable property and taxable income of various kinds. The area served with TVA power now pays a considerably larger share of the total of the Nation's tax bills of all kinds than it did when TVA was created, and the share is continuing to grow. Abundant low-cost power, as one of the tools of economic development, is helping bring this about.

3. Unlike most private utilities, TVA does not sell power directly to ultimate consumers except to a few large power-using industries and Federal agencies. TVA generates power at dams and steamplants and transmits it to independent locally owned and operated distribution systems. These local distributors supply TVA power to nearly 5 million people. The distributors' operations, as well as TVA's, should be considered in comparisons between the TVA area and others.

4. In developing the region's power resources, TVA's assignment by the Congress is to make the power available for widespread use at the lowest possible rates that will cover costs. The disrtibutors contract with TVA to work toward the same objective. Under these circumstances the use of electricity grows rapidly. An incidental result is that tax payments by the power systems and their consumers grow large even though the taxes per unit of power consumption may be comparatively small.

5. TVA and the distributors of TVA power are pledged to subordinate earnings to the interests of the consumers. In this area power use is large but earnings are modest compared to areas where power is supplied by companies organized for profit. Since Federal income taxes are based on profits, any power system may reduce its income taxes to the extent that it foregoes profits in the interests of lower rates to the consumers. In so doing, it will also create other revenues for the Treasury through development resulting from the abundant supply and use of electricity at low rates.

6. The tax policies applied to municipal electric systems and rural electric cooperatives markedly affect comparisons among regions. There are more than 1,800 municipal and 900 cooperative electric distribution systems in the United States and they serve more than 1 out of 5 consumers. However, their coverage varies widely from State to State. The number and percentage of consumers served through such systems are unusually high in the Tennessee Valley area; however, approximately as many consumers are served by public and cooperative systems in California as in the area supplied with TVA power, and the percentage so served is higher in Nebraska. Throughout the Nation such systems are exempt from Federal income taxes. In many States (including three of the States in the Tennessee Valley area) rural electric cooperatives are exempt from State and local taxes.

7. More than half of the electricity TVA sells is used by the Atomic Energy Commission and other defense agencies of the Federal Government. TVA does not pay taxes to State or local governments on these sales; this represents a saving to the Federal taxpayers. Neither, of course, does it pay Federal taxes on these Federal sales. Where comparably large amounts of power are supplied to the Government by private power companies, the tax payments are small in comparison with taxes on ordinary commercial power operations.

All these major differences (and some less striking ones, such as the larger than average proportion of rural consumers and rural power facilities in the area served with TVA power) affect tax comparisons and their significance. Some of these factors affect comparisons of State and local taxes differently from Federal taxes. Therefore the two kinds of taxes are considered separately in the following paragraphs.

STATE AND LOCAL TAXES

Payments by TVA

TVA, as an agency of the Federal Government, is not subject to taxation by States or their subdivisions. However, the TVA Act provides for TVA to make payments in lieu of taxes in the States in which it sells power and owns power facilities.

The present provision was enacted in 1940 after extensive consultation with taxing bodies in the area and experts in public fiscal policy. These consultations and the hearings and debate brought out several important considerations: The primary purpose of the power facilities was to help stimulate the economic growth of the area; excessive payments in lieu of taxes would tend to thwart this purpose. Low electric rates, moreover, would bring savings to the local governments in power bills for schools, water pumping, street lighting, and other public undertakings. On the other hand, TVA was acquiring for its power system some land and facilities on which others had been paying taxes that provided needed governmental revenue.

The formula Congress established, after considering these factors, results in TVA paying to States and counties in lieu of taxes 5 percent of its revenues from power sales except sales to the Federal Government. In fiscal year 1959 these payments amounted to $5,900,391.

Payments by distributors

The 90 municipal and county owned electric systems that distribute much of TVA power all make payments in lieu of taxes. These payments are determined in most cases by applying the sum of the State, county, and local property tax rates to 100 percent of the book value of the electric system. Most of the 51

cooperatives—those operating in Tennessee, Alabama, Kentucky, and Virginia—pay State and local property taxes determined by assessment of their properties by State commissions. The cooperatives distributing TVA power in Georgia, Mississippi, and North Carolina, like those distributing power from private utilities in those States, are exempt by State law from State and local taxes. The taxes of the two privately owned distribution systems are determined in the same way as for other private utilities.

The power distributors' tax and tax-equivalent payments to State and local governments were approximately $8.9 million in the fiscal year 1959.

Comparisons with taxes of power systems in other areas

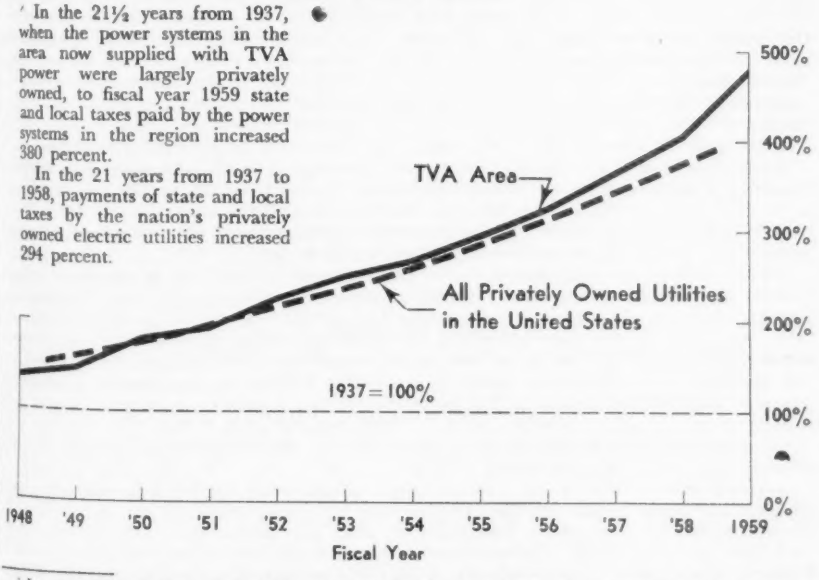
The combined payments to State and local governments by TVA and the distributors amount to about 7 percent of the power bills paid by the individuals and businesses that use TVA power. In the case of the private power companies serving surrounding areas, the payments of State and local taxes range from about 5 percent to 11 percent of the power bills of the consumers they serve. The comparisons are not exactly parallel; if, for example, the figures for rural electric cooperatives served by the private companies are consolidated with the companies' figures (to more nearly parallel the figures for the TVA area), there would be some reduction in the computed percentage devoted to State and local taxes of the bills of all the consumers using power generated by the companies. However, it is clear that the percentage of the consumers' power bills that is paid to the States and local governments for tax purposes is neither disproportionately higher nor lower in this area than in surrounding areas.

The change in this region from private to public power supply has affected favorably the tax receipts collected from the power operations by the taxing jurisdictions in the region. In 1937 when most of the power facilities in the area now supplied with TVA power were privately owned, the State and local taxes paid on all these electric operations totaled less than $3 million. The combined payments by TVA and its distributors in fiscal year 1959 represents an increase of 380 percent[1] in the 21½ years that have elapsed. By comparison, in the past 21 years the annual payments of State and local taxes by the power companies in the Nation increased 294 percent. The chart below portrays graphically the more rapid increase in State and local taxpayments by the electric systems in this area than in the rest of the United States.

GROWTH IN STATE AND LOCAL TAXES

In the 21½ years from 1937, when the power systems in the area now supplied with TVA power were largely privately owned, to fiscal year 1959 state and local taxes paid by the power systems in the region increased 380 percent.

In the 21 years from 1937 to 1958, payments of state and local taxes by the nation's privately owned electric utilities increased 294 percent.



[1] In computing the percentage increase in State and local taxpayments in the area supplied with TVA power approximately $407,000 paid by TVA in fiscal year 1959 on revenues received from the sale of power to Memphis (whose long-term contract with TVA expired on May 31, 1958) have been excluded.

In addition to the tax and tax-equivalent payments they receive, the local governments benefit financially in many ways from the improving economy. They also benefit from lower electric bills for public services.

Review of tax arrangements

The most important question regarding State and local taxpayments from the sale of TVA power is whether they are satisfactory to the region. (Other regions, whose own local taxes are not affected by the level of taxpayments in the TVA area, are interested simply in learning that the low rates for TVA power are adequate to cover substantial local taxpayments.) TVA was required to review the payments in lieu of taxes after 5 years of operation under the provisions of the act and report the results to Congress. The review showed that the States and counties affected were generally satisfied with the formula for payments.

TVA's payments in lieu of taxes were also reviewed by a study group of the President's Commission on Inter-governmental Relations in 1955. It recommended that the arrangements not be disturbed since "the present system is working to the general satisfaction of the State and local governments in the TVA areas. * * * [It] reimburses the recipient governments for the loss not merely of potential property tax receipts but of all potential taxes of these governments referable to the power property and its operation."

FEDERAL TAXES

The Federal Government's tax receipts from power operations are smaller in the area TVA supplies than is nearly any other part of the United States; yet the total financial benefits the Government receives from power operations are probably greater in this area than any other.

The principal Federal tax affecting private power systems is the income tax, or tax on profits. It is the policy of the Federal Government not to apply the income tax to an enterprise of its own, like TVA's power operations, or to municipal and cooperative enterprises like most of the distributors of TVA power. Even if the income tax were applicable, the payments would be low, since comparisons of income taxes amount to comparisons of profits, and TVA power is supplied essentially on a nonprofit basis.

There are half a dozen fairly large private power companies which sell power in bulk, like TVA without retail distribution operations: Ohio Valley Electric Corp. (including Indiana-Kentucky Electric Corp.), New England Power Co., Electric Energy, Inc., Commonwealth Edison Co. of Indiana, South Carolina Generating Co., and Montaup Electric Co. Their sales for 1958 aggregated $200 million, with approximately half of this revenue coming from sales to the Atomic Energy Commission, and their total Federal taxpayments amounted to approximately $9 million. These figures provide an interesting basis for comparing TVA's operations, which produced power revenues in fiscal year 1959 of $238 million, close to half of which was from sales to Federal operations.

In comparison, the Federal Government receives much larger financial benefits from the power operations in the TVA area. These benefits include net earnings from TVA's operations, savings to Federal installations supplied with TVA power, and tax and other financial benefits arising from the economic development of the area. These will be described briefly in turn.

All of TVA's earnings accrue to the Government. The TVA power system has earned a return substantially greater than the Treasury's cost of money. During the last 5 years, for example, the return on the total investment in TVA power facilities has averaged 3.8 percent (after all operating expenses, depreciation, and payments in lieu of State and local taxes) while interest on the outstanding marketable securities of the Treasury averaged 2.4 percent. The net margin amounted to $95 million over the 5 years, or an average of $19 million a year. That benefit alone is considerably larger than the income tax the Government could expect to receive from a privately owned power wholesaling company with sales equal to TVA's.

Approximately half of all the electrical energy sold by TVA is sold to other Federal agencies, primarily the atomic energy plants at Oak Ridge and Paducah. Therefore TVA's low rates, and the fact that the region does not collect State and local taxes on these Federal power sales, mean lower power bills for those Federal operations. Most of the Federal operations affected, unlike TVA's power operations, are tax supported; savings in their operating costs lighten Federal taxes. It is reasonable to assume that their average power bills would

have been at least one-fourth higher if TVA did not exist. On this basis, the savings to Federal taxpayers in fiscal year 1959 were over $27 million.

Moreover, the example of TVA's low rates to the Atomic Energy Commission, by far the largest consumer of TVA power, has led to savings in AEC's other large power bills. To achieve rates closely comparable to TVA's, the private companies that were established to furnish large blocks of power to AEC entered into arrangements novel among private utilities. Among other things, they adopted financing methods heretofore found only among public power systems, raising nearly all of their capital by selling bonds rather than financing a large part through stocks. This one factor alone—the difference between interest cost on the bonds and the return most privately owned utilities earn after taxes—saves AEC, and hence the Federal taxpayers, about $10 million a year.

Even more important to the Government and the taxpayers than the earnings from the TVA power system and the savings on the power bills of Federal agencies is the impact of TVA, through its power program and other resource development activities, on the economy of the region and of the Nation. Effective resource development creates tax and other financial benefits to the Federal Treasury. As a simple example, it is estimated that the savings in electric bills of commercial and industrial users of TVA power result in increased income taxpayments of as much as $15 to $20 million a year. All told the Tennessee Valley area now contributes annually hundreds of millions of dollars more to total Federal tax revenues than if its share of the total were still as small as it was before Congress created TVA. The Tennessee Valley was an area of severely depressed income. It still has a long way to go before it achieves as high a per capita income as the U.S. average. Enough progress has already been made, however, so that now this area is making an increasing contribution to the economic strength of the Nation. Furthermore, this area now requires less assistance per capita from the Federal Treasury than most sections receive. The abundant availability of low-cost TVA power is one of the important factors in these changes in the economy of the region and of the Nation.

WHY RATES FOR TVA POWER ARE LOW

The low rates at which TVA power is sold have brought benefits, not costs, to all levels of government, and hence to the general taxpayers. Since the rates are not low because of tax advantages, how are they explained? The answer is to be found in the fact that TVA power is not sold to earn profits but to make this vital economic resource available in abundance at the lowest possible cost to the consumers. Part of the difference in rates is a difference in level of earnings. Part can be credited to TVA concentrating its attention on generation and transmission, with retail distribution handled by local agencies. Most important, low rates, through the leverage of mass production, make lower costs possible. The region has also been able to capitalize on economical hydroelectric and coal resources of which little use was formerly being made. The combined effect of all these factors is that the expenditures per kilowatt-hour by TVA and the distributors of TVA power for production, transmission, distribution, accounting, and administration all average less than half the corresponding expenses per kilowatt-hour of the American power industry as a whole. In short, low-cost power helps develop the economy of the region; then the region uses more power that can be produced at still lower unit costs. The stronger region contributes to a stronger Nation; it also contributes to the financial resources of the National, State, and local governments.

Mr. PILLION. I will skip the other years, but I took 1946. I will proceed to the year 1958, in which the taxes by TVA and its distributors amounted to 0.58. The taxes paid by investor-owned utilities for the same calendar year was 2.15, almost approaching four times. Now, Mr. Director, would you consider that to be a minor item?

Mr. JONES. No, it is not a minor item. Those two figures, I do not believe, are accurate, however.

Mr. VOGEL. I think that in this connection we should be careful to weigh together the in lieu tax payments made by the distributors in the area as well as the in lieu tax payments made by the TVA. As I indicated, the TVA is making in lieu payments that are equal to 5 percent of gross sales, exclusive of sales to the Government; obviously you rule out those sales.

Mr. PILLION. Yes.

Mr. VOGEL. If they incorporated that, you might have to know the base of their figures in order to comment intelligently.

Mr. PILLION. That is right.

Mr. VOGEL. Certainly our figure is 5 percent of gross sales exclusive of sales to the Government. To that you must add the in lieu of tax payments made by the distributors. I think you will find that will bring the total up to something like 7 percent; is that correct?

Mr. WAGNER. 6.8 percent.

Mr. VOGEL. 6.8 percent. That, I think you will find, for similar tax payments is pretty well within the range paid by private utilities surrounding the TVA area.

Mr. PILLION. This was issued by the Edison Electric Institute, 750 Third Avenue, New York, N.Y.

Mr. VOGEL. I would question the source. I think maybe we ought to do our figuring on that too.

Mr. PILLION. That is true. I would expect you to, just as I would like to very much to peruse and examine the statements made by you gentlemen to make sure that all the figures are in and even then I am sure that we would have differences of opinion as to what ought to be added and what ought not. I am just making these generalized statements or questions.

Mr. CANNON. If the gentleman will permit——

Mr. PILLION. Certainly.

Mr. CANNON. It might be said that if the States and the specific units referred to, were not satisfied with the rates they would say so. Has there been any complaint as to rate of payments made by the TVA? Has there been any suggestion to the effect that their payments in lieu of taxes are unsatisfactory?

Mr. VOGEL. No, sir.

Mr. CANNON. In no instances?

Mr. VOGEL. No, sir; those to whom we pay the taxes are apparently perfectly satisfied with what we pay them.

Mr. CANNON. As a matter of fact, they are receiving a great deal more than they would have gotten if TVA had never been established?

Mr. VOGEL. I am sure of that, sir.

Mr. PILLION. May I add this, Mr. Chairman, into the record, this sheet?

Mr. CANNON. Yes; that will be included in the record at this point.

DATA OF INTEREST TO THE ELECTRIC LIGHT AND POWER INDUSTRY

EDISON ELECTRIC INSTITUTE,
New York, N.Y., December 1, 1939.

[Vol. XXII, No. 12]

STATE AND LOCAL TAXES—TVA VERSUS INVESTOR-OWNED UTILITIES

A recent TVA publication entitled "TVA Power and Taxes" states that the amounts paid in lieu of State and local taxes by TVA and its distributors have increased 380 percent over the $3 million paid in State and local taxes by the utilities in the TVA region whose properties were purchased by TVA and that the change from private to public supply affected favorably the tax receipts collected in the region.

The Tennessee Electric Power Co. was bought by TVA and its distributors in August 1939. This utility was by far the largest one purchased by TVA and its purchase price was about 70 percent of the amount paid for all the utilities purchased by the TVA system. In 1938 the Tennessee Electric Power Co. paid in

State and local taxes $2,720,000 which was equal to 2.61 percent of its average plant investment of that year. During the same year the investor-owned utilities in the United States paid an amount for State and local taxes equal to 2.18 percent of their electric-plant investment. The TVA system in the 1958 fiscal year had an electric-plant investment on the basis of its own allocation 23 times that of the Tennessee Electric Power Co. in 1937 and paid only 5 times as much in lieu of State and local taxes as that company paid in these taxes in 1938. The TVA system of course pays no Federal taxes. The investor-owned electric companies paid 13.6 percent of their operating revenues in Federal taxes in 1958, in addition to 9.6 percent for State and local taxes.

Amount paid in lieu of State and local taxes by TVA compared to that paid by investor-owned utilities

[In percent of average electric plant investment]

Fiscal year ending June 30	TVA	TVA distributors	TVA and distributors combined	Investor-owned utilities, calendar year
1946	0.45	1.85	0.74	2.12
1947	.36	1.76	.69	2.18
1948	.43	1.63	.74	2.17
1949	.41	1.42	.72	2.12
1950	.46	1.37	.76	2.11
1951	.43	1.33	.74	2.15
1952	.47	1.34	.77	2.13
1953	.42	1.32	.71	2.10
1954	.35	1.33	.64	2.09
1955	.31	1.38	.60	2.12
1956	.28	1.41	.57	2.15
1957	.29	1.39	.56	2.16
1958	.30	1.32	.58	2.15

Source: Annual reports of TVA and TVA distributors, EEI statistical bulletins, Moody's Manual of Public Utilities, 1939.

Mr. CANNON. I am not impressed by the figures nor the argument presented by the Edison Electric Institute. What does impress me is the evidence the statement provides that after more than a quarter century many in the electric industry still do not understand why Congress created TVA and how successfully TVA is achieving the objectives that Congress set forth in the TVA Act.

Congress created TVA to strengthen the Nation by helping to improve an undeveloped region. Congress did not authorize TVA dams in order that the region might receive financial aid through the payment of property taxes on the new Federal projects. Congress wanted the dams and steamplants built to help strengthen and develop the economy through such avenues as the abundant supply of power at the lowest possible rates. As far as taxes were concerned, Congress would have been satisfied merely with replacement of the former tax payments by utilities purchased by TVA and the distributors of TVA power. Congress established the formula for TVA's payments in lieu of taxes; it deliberately did not adopt the anachronistic property tax, but provided for payments to the States and local governments of a small fraction of TVA's power revenues, exclusive of sales to Federal agencies.

The figures presented by the Edison Electric Institute have little if any significance. For one thing, they ignore the fact that a large part of TVA's electric-plant investment is used to serve Federal loads. Another important fact is the predominantly rural nature of many of the power facilities in the TVA area. When TVA was created, only 1 farm in 30 in that entire area had electric service; now approximately half of all the users of TVA power are rural people. The

rural facilities of TVA distributors should be compared with those of similar REA-financed systems in other rural sections of the country rather than with the facilities of the average private electric company which left the job of rural service to be done by others.

It does seem to me to be highly significant, however, that the course laid out by Congress and followed by TVA has brought about such a very large growth in power use that even with Congress having deemphasized tax equivalent payments, the rate of increase of such payments has actually been faster in the area served by TVA than the rate of increase in payments of State and local taxes by utilities for the Nation as a whole. And the increase in the TVA area was from an original tax level which the EEI statement indicates was high compared to the national average; this makes the record of faster-than-average growth in taxpayments in the TVA area all the more phenomenal.

NATIONAL BENEFITS OF TVA

Mr. PILLION. Now, with regard to the basic objective of TVA; is it the policy of the administration here that this TVA is or has been created solely for the benefit of the region to be served, or is the policy of the Board to consider that this installation is intended to be of mutual benefit not only to the region but also to the nation?

Mr. VOGEL. I have said in my opening statement, and several times since, that I think one of the great values of the Tennessee Valley Authority is that it adds to the strength of the nation—that is, not only in establishing a parameter for the cost of power within this region as relating to others but also in spreading the benefits of knowledge relating to better fertilization of crops, the better management of farmlands, and in a number of other fields. I mentioned the matter of local flood control which is of national benefit.

Mr. PILLION. I appreciate those rather intangible objectives, but I am talking about dollars and cents, immediate dollar advantages. I appreciate the intangibles, but I would rather let someone else have the intangibles and we have the tangibles.

Mr. VOGEL. We can talk about tangibles, Judge Pillion, relating to the cost of electrical equipment as it has affected other power producers throughout the Nation. TVA seeking foreign bids indicated to our domestic producers the necesity for lowering their cost of generating facilities. That has resulted in a double reduction—a two-time reduction in costs by the large electrical manufacturers on this equipment which has resulted in a benefit not only to all other electrical producers in the Nation but to the people they serve.

I think if you will talk to any of the private producers of power they will tell you very frankly that the effort of the Tennessee Valley Authority to keep the price of coal at a reasonable level has served to their advantage. Not long ago I had a call from the chairman of the board of the Florida Power & Light Co. at Miami, congratulating TVA upon the fine job it had done in keeping the cost of these items down for the industry. He was referring in that instance particularly to the price of boilers. Not only was he congratulating us but he referred to the testimony which I gave before this committee last year, which he had read in its entirety, and he ended by saying that he now wanted to make a trip to visit our fine facility. Private industry is greatly appreciative.

Mr. CANNON. If the chairman would permit, there, might it not also be added that more than half of the power generated by TVA goes directly back to the Government and is used by the Government in its program for national defense?

Mr. VOGEL. The figure is not quite that now, as I stated earlier; it's probably around 45 percent, but that does not change the validity of your statement.

Mr. CANNON. It is used by the Government.

Mr. VOGEL. Yes, sir.

Mr. CANNON. For national defense, a service which otherwise would be either impractical, impossible, or at least very expensive.

Mr. VOGEL. We are convinced that the Government would be paying considerably more for its power if it were not for the Tennessee Valley Authority being in a position to supply it; yes.

Mr. CANNON. So all of the power, the use of which has been discussed here, is only a portion of the power, not in excess of 55 percent of it?

Mr. VOGEL. That is correct.

Mr. CANNON. At times one-half of it?

Mr. VOGEL. Yes, fairly recently, as a matter of fact.

Mr. CANNON. Yes.

Mr. VOGEL. Three or four years ago 57 percent of all the power produced was going to Federal uses and it is not that the Federal use has decreased but that our generating capacity and other uses of power has increased during this interim period.

Mr. CANNON. Mr. Pillion.

Mr. PILLION. I thank the chairman for those remarks; they were made earlier today, but I think they bear repetition, that the Federal Government does obtain a great deal of benefit from the fact that it receives cheap power. I don't want to say low-cost power; I say cheap-rate power.

Mr. CANNON. Let us say, as compared with the price we would otherwise have to pay, it is cheap power, low-rate power.

Mr. PILLION. Low rate. Thank you, Mr. Chairman.

NUMBER OF EMPLOYEES

Now, with regard to the number of employees, General, would you say that the number of employees operating the TVA installation is less than the number of employees that would be employed in a comparable privately owned facility of about the same size?

Mr. VOGEL. Yes. If you will allow me to separate out those employees whose work has nothing to do with power——

Mr. PILLION. Yes.

Mr. VOGEL. And relate this only to those employed in the operation of the power complex, I would say that we have a lower number, we have a lower percentage of employees due to the fact that we are utilizing much larger units. So quite obviously it follows——

Mr. PILLION. There is more efficiency.

Mr. VOGEL. There is a greater efficiency and a lesser number of personnel required per kilowatt-hour produced.

Mr. PILLION. I might say in regard to your recital here of the boiler situation that I think the benefits that came from that situation and

from the lower price of coal stem probably from the good administration by the members of this Board rather than from the installation or the institution itself. I think the credit belongs to the individual gentlemen associated here——

Mr. VOGEL. We consider ourselves all a part of the institution.

Mr. PILLION. Rather than to the institution that we have here and to that extent I think you gentlemen are to be congratulated and complimented.

I think, Mr. Chairman, that is the end of my examination.

Mr. CANNON. Mr. Rabaut?

Mr. RABAUT. I have nothing.

FEDERAL PARTICIPATION IN ECONOMIC DEVELOPMENT

Mr. VOGEL. Mr. Chairman, may I suggest that Mr. Hays is here now and he might care to answer the questions which were posed a moment ago relative to his earlier statement and his meaning therein contained. I would think it would be fair to Mr. Hays if he might be given a chance to clear it.

Mr. CANNON. May I suggest, Mr. Pillion, that you ask the questions again.

Mr. PILLION. Mr. Director, I was very much interested in the statement of basic policy, and the note that I have about it is this: Each region is entitled to a share of the growth of power in this country, and I made the statement earlier that no one is entitled to anything in this area or in this country other than what he works for himself, he creates himself, and I suppose in talking about a region we cannot talk about the mountains being entitled to anything in the area, or the rivers; we are talking about human beings. That statement sounds very much to me like the statement of Marx and Engels and Lenin and everybody else who believes in the Socialist-Communist theory, and I make no implication here that anyone here is advocating that situation. It sounds very much like paraphrasing the old saying that everyone is entitled to whatever their needs may be, et cetera.

It has always been my concept of this Government that each area and each person grows in accordance, in a free economy, with service to his fellow man, voluntarily bought and paid for by his fellow man, rather than by the Government creating economic equality of peoples of one region or another: that it is a matter for we individuals to move about in this country and create our own economy and create our own prosperity.

I was just wondering whether we realize that perhaps that general statement might in essence be a paraphrasing of the Socialist basic philosophy.

Mr. HAYS. Mr. Chairman, I would certainly——

Mr. CANNON. Director Hays.

Mr. HAYS. Thank you, Mr. Chairman. I appreciate Mr. Pillion giving me an opportunity to clear up any misunderstanding on that point. If I used the expression that each region is entitled to a certain share of the Nation's growth, I certainly did not intend to convey any of the ideas that would be bound up in the Marxist ideology and I am sure, Mr. Pillion——

Mr. PILLION. I recognize that, and I just wanted to get a clarification here for the record, so that we understand each other.

Mr. HAYS. I appreciate that very much and I have an idea that if we had time to spell out in detail our views on the national policy we would not find ourselves at great variance.

Mr. PILLION. I am sure of that, and I require no further explanation. I just bring it to the attention of the members of the Board because it could be interpreted to be a rephrasing or a reiteration of that basic philosophy. I am sure that it is not meant that way.

Mr. HAYS. Mr. Chairman, I was of course speaking extemporaneously. The views of the Board were expressed by the Chairman and we will stand on that statement. I was asked, in addition, to put in the record some figures that would enlighten the House and the committee on the question of industry migration. If the committee will bear with me, I would like to add a few words as to my belief about the growth of American industry. It could be phrased in this way: that the American economy must be a free economy. I believe that growth must be achieved by self-effort, but in the development of natural resources there is a wide field for legitimate Federal effort, and cooperative effort, in the national interest. I believe in the free movement of people and I also believe that industry is free to establish itself as it will to take advantage of natural resources as they are developed. The luring of industry from one region to another by unethical and improper means is a policy to be discouraged and frowned upon. At the same time, it would be equally improper to assert that any region of the country, simply because it is now highly industrialized, is entitled to a corner on all the country's industrial growth; or to put it the other way, it would be improper to hold that a region deficient in industrial growth should be prevented from seeking industry by all ethical means.

When I asserted that each section of the Nation is entitled to share in the total industrial growth, I had in mind the fact that no section of the country will benefit if any section stagnates. It would not be economically healthy for the South or West if the Northeast were to have no growth in industry, and conversely it would not be in the interest of the North if the South or West were to fail to exert their best efforts to achieve maximum economic growth. In our expanding economy, growth in any section need not be at the expense of any other section.

I hope I have made clear that in this sense the sharing of economic and industrial growth in all sections of the country is completely in keeping with the free American economic system.

Mr. CANNON. In speaking extemporaneously, as you say, Director Hays, when the transcript comes to you, you can supplement the statement which you have discussed offhand, at this point. Mr. Rabaut.

Mr. RABAUT. Mr. Chairman, off the record.

(Discussion off the record.)

Mr. CANNON. On the record. The gentleman from Pennsylvania, Dr. Fenton, has left some questions which he would like to be answered in the transcript. I will recognize Mr. Jensen for that purpose.

The clerk suggests that we reserve the right for the staff to go over them.

Mr. JENSEN. Yes; that is all right.

Mr. CANNON. Without objection.

(The matter referred to follows:)

Dr. FENTON. Mr. Chairman, I have a few observations to make and a number of questions to ask and requests to make of the TVA witnesses. A number of the items relate to extending data placed in the hearing record for fiscal year 1960. I would like for the answers to my requests to be as complete, concise, direct, and germane as possible, leaving out all extraneous comments or verbiage.

ADDITIONS TO TVA POWER-GENERATING CAPACITY

Question. Will you furnish a tabulation for the record showing all the major additions to TVA system capacity now under construction, planned and/or scheduled for completion in fiscal year 1960 and for each of the next 4 years, the total estimated cost for each unit or plant, amount expended for each at the end of fiscal year 1959, and the expected expenditures for each in fiscal years 1960, 1961, 1962, 1963, and 1964?

(The tabulation requested follows:)

Additions to generating capacity under construction, planned and/or scheduled for operation prior to June 30, 1964

[In millions]

	June 30, 1959	Estimate, 1960	Estimate, 1961	Estimate, 1962 [1]	Estimate, 1963 [1]	Estimate, 1964 [1]	Total estimated cost
Hydro units:							
Wilson units 19-21	$1.6	$12.5	$8.7	$1.2	.....	.....	$24.0
Wheeler units 9-11	.....	2.3	11.9	5.7	$1.3	.....	21.2
Melton Hill units 1-2	.....	.....	3.1	9.0	6.0	$1.9	20.0
Steam units:							
Widows Creek unit 7	27.6	48.5	5.9	.....	.....	.....	82.0
Colbert unit 5	.6	10.1	35.5	24.6	4.2	.....	75.0
Paradise units 1-2	.....	15.2	65.4	87.0	30.4	7.0	205.0
Eastern unit	.....	1.0	14.1	38.0	33.0	7.9	94.0
Johnsonville units 7-10 [2]	73.1	2.6	.....	.....	.....	.....	75.7
Gallatin units 3-4 [3]	60.6	2.6	.2	.....	.....	.....	63.4
Total	163.5	94.8	144.8	165.5	74.9	16.8	660.3

[1] Preliminary.
[2] Placed in service Nov. 30, 1958, Jan. 14, 1959, June 13, 1959, and Aug. 20, 1959, respectively. Cleanup work being done in remaining part of fiscal year 1960.
[3] Placed in service May 22, 1959, and Aug. 9, 1959. Cleanup work being done in remaining part of fiscal year 1960 and in the early part of fiscal year 1961.

ESTIMATED TRANSMISSION COSTS

Question. Will you also furnish the corresponding estimated costs and expenditure data for the transmission and other related system facilities needed to market the power from the added system capacity for these same years?

(The information requested follows:)

Estimates for transmission system facilities are as follows:

Fiscal year:	Million
1960	$30.8
1961	31.8
1962	[1] 31.8
1963	[1] 36.8
1964	[1] 30.0

[1] Preliminary.

SOURCE OF FUNDS

Question. Will you also show what portion of the foregoing costs for generating plants and other system facilities are expected to be expended from appropriated funds, what portion from power revenues, and what portion is to be derived from the sale of bonds? Give details for each of the years noted. Also give expected unexpended balance in each category of funds as of June 30, 1960.

(The information requested follows:)

Appropriated funds available from unobligated balances of previous appropriations are being used to complete Kingston steamplant for which all units

have been placed in commercial operation. Estimates for the Kingston plant, not included in the above tabulations, are as follows: Fiscal year 1960, $1.5 million; 1961, $1.2 million.

To the extent possible other generating facilities will be financed from current power revenues. Revenue bonds will be issued as a supplementary source of financing as required. The 1961 budget estimate for revenue bond issues is $115 million during that year. For fiscal years 1962, 1963, and 1964 it is estimated that such issues will average about $100 million per annum. Precise details are not available at this time.

The unexpended balance of power proceeds is estimated at $23,215,289 at June 30, 1960. This estimate includes no funds derived from bond proceeds since first issues are scheduled for fiscal year 1961. Of the $2,411,000 total of appropriated funds estimated to be carried forward into 1961, it is estimated that $1,217,000 will be applied to the Kingston steamplant.

Question. If additional power is expected to be obtained through purchase from Federal projects, or by purchase or lease from non-Federal sources which is not now included in TVA system capacity, give details for each of the following fiscal years: 1960, 1961, 1962, 1963, and 1964.

(The information requested follows:)

Power produced at Corps of Engineers projects now in operation on the Cumberland River is being marketed through the TVA system; presumably power from additional projects on that river may also be so marketed. TVA has no other present plans for obtaining additional power through purchase from Federal projects or by purchase or lease from non-Federal sources.

LACK OF SPECIFIC AUTHORIZATION FOR NEW STEAMPLANT

Question. At last year's hearings you were requested to file for the record a copy of the invitation to bid on over 6 million kilowatts of steam turbogenerators. On October 1, 1959, the TVA Board of Directors announced plans for the construction of a new steam-electric generation plant on the west bank of the Green River near Paradise in western Kentucky. The announcement also stated that the contract for the initial 600,000 kilowatt steam turbogenerator unit was ordered August 13, 1959, from the General Electric Co. at a price of $18,007,280. Was any specific authorization or appropriation ever made by the Congress for the construction of this Paradise steamplant?

(The information requested follows:)

Construction of the Paradise steamplant is covered by general authorization in the Tennessee Valley Authority Act, as amended. No appropriated funds will be needed in financing the cost of this project.

Question. When was the construction of this $100 million-plus plant authorized by the TVA Board? What was the vote?

(The information requested follows:)

On August 13, 1959, the TVA Board of Directors awarded a contract for a 600,000-kilowatt turbogenerator unit, with the understanding that the unit would be installed in a new steamplant in the western area of the system. On September 25, 1959, the Board selected the Paradise site for the new station. On October 19, 1959, the Board formally authorized construction of the Paradise steamplant. The vote in each instance was unanimous.

Question. Was any committee of Congress ever notified of the intention to construct a plant at Paradise and, if so, what committees and when? (If the answer is "yes," supply a copy of such notification for the record.)

(The information requested follows:)

TVA's budget justification for 1960 which was set out in the record of the appropriation hearings of April 22, 1959, before the House Subcommittee on Public Works Appropriations, beginning on page 792, included statements (p. 803) that "at least another million kilowatts of capacity should be started" to be financed from bond funds, and that "early enactment of financing legislation would support efforts to hold down the Federal budget for 1960 by avoiding the need for appropriations for this additional power capacity." Much of the ensuing discussion was concerned with the financing of power generating facilities from bond proceeds. At that time TVA had already solicited bids for additional generating units in anticipation of enactment of the bond financing legislation and there was considerable discussion concerning the invitation to bid. A copy of the invitation is in the record on pages 918–952. The Paradise site had not been selected at the time of the hearings.

Question. Was the President or the Budget Bureau advised of the pending TVA actions on the Paradise plant prior to such action? If not, does TVA

believe it can take such actions without prior notification to or approval by the President?

(The information requested follows:)

The information in the TVA budget justification for 1960 and the record of the hearing referred to in the answer to the preceding question were available to the Office of the President and to the Bureau of the Budget. Similar information was also included in TVA's budget submission for 1960 to the Bureau of the Budget and was the subject of hearings before the Bureau of the Budget. The necessity for the additional capacity had been common knowledge for a long time. By routine, informal discussions the Office of the President and the Budget Bureau were kept informed on TVA's plans to provide required additional capacity.

BIDS ON NEW STEAM-GENERATING UNITS

Question. An examination of the abstract of bids shows that the General Electric bid on the 600,000-kilowatt unit was the only bid for a unit of this size.

Apparently, the invitations to bid were changed almost at the last minute to provide for alternate bids on units of unspecified size. Only two bids were received under this schedule, one from General Electric for a 600,000-kilowatt unit at $18,007,280 and one from Westinghouse for an 800,000-kilowatt unit at $24 million. Each of these bids was around $30 per kilowatt of rated capacity. Can you explain why this change in the invitation to bid was made and why the award was made on a basis of a unit price per kilowatt of almost double the unit price bid on the originally specified 500,000-kilowatt units?

(The information requested follows:)

Invitation No. 31-34762 was issued April 10, 1959, for bids to be opened May 26, 1959. The invitation asked for bids on units of different capacities: 500,000 kilowatts, 400,000 kilowatts, 350,000 kilowatts, and 275,000 kilowatts. On May 6, 1959, by addendum I, bid opening date was changed to June 16, 1959.

Prior to issuing the invitation, our needs had been discussed with various manufacturers. The consensus was that a 500,000-kilowatt unit was probably the largest that could be built and delivered in time for operation in the fall of 1962, the time specified for the first of the units covered by the invitation. The invitation accordingly used this as the top size. After the invitation was issued, the manufacturers said that a review of their plans and manufacturing capacity showed that units larger than 500,000 kilowatts could be delivered within the available time.

On May 22, 1959, about 4 weeks before bid opening date, by addendum III, prospective bidders were notified that alternate bids offering units of different capacities would be considered.

When the bids were opened, General Electric and Westinghouse were the only bidders offering units for operation in the fall of 1962.

After evaluation for efficiency, the bid prices on a kilowatt of capacity basis were:

General Electric	$30.51
Westinghouse	33.62

The foreign manufacturers offered delivery dates too late to supply our needs for a first unit. Their bids, evaluated for efficiency and for "Buy American" differential, on a kilowatt of capacity basis were:

Brown Boveri	$23.03
Parsons	30.54
English Electric	31.00

The bids of Parsons and English Electric were unacceptable both for reasons of price and (for a first unit) of late delivery. Award was made to General Electric as low bidder meeting required delivery. The disposition of the Brown Boveri bid is discussed in the answer to the next question.

Question. It is noted that you have also ordered an additional 500,000-kilowatt unit. When was this unit ordered and where is it to be installed? Who was it ordered from and at what price?

(The information requested follows:)

Invitation No. 31-34762, discussed in the answer to the preceding question, in addition to asking for offers for units to operate in the fall of 1962, asked for offers for units for operation at a later date.

Brown Boveri offered a 500,000-kilowatt unit for operation in August 1963, when it would be required to meet the load growth in that year. Their quoted price was $8,500,000. The corresponding evaluated cost was $11,514,600 after

evaluation for efficiency and the "Buy American" differential. This is $23.03 per kilowatt of capacity, as noted in the answer to the preceding question.

Award was made to Brown Boveri for a 500,000-kilowatt turbogenerator unit on August 13, 1959, at the price of $8,500,000.

This unit will be installed at a location not yet selected where it can help to serve loads in the eastern part of the power system.

LOCATION OF NEW STEAMPLANT

Question. The President's budget refers to a steamplant to be built in the eastern part of the TVA area. Where and what size plant is this? Does TVA plan to construct this plant without specific authorization of the Congress?

(The information requested follows:)

As stated in the budget message to Congress, a 500,000-kilowatt turbogenerator has been purchased for supplying loads in the eastern part of the system. Decisions regarding the location of this 500,000-kilowatt unit have not yet been made. As the budget document explains, "The specific location has not been determined and if studies now in progress do not result in a satisfactory new plant location, the unit can be put into an existing station." The installation of this unit is covered by general authorization in the TVA Act, as amended.

COAL CONTRACT FOR NEW PARADISE STEAMPLANT

Question. Was the coal contract for the Paradise plant obtained through competitive bidding?

Yes.

Question. If so, will you furnish for the record an abstract of the various bids received for supplying coal to the Paradise plant?

(The information requested follows:)

Only one bid was received. This was the bid of Peabody Coal Co. which offered 60,000 tons of washed mine-run coal per week for a term of 12 years at $3.80 per ton f.o.b. rail cars at loading point, said price to be subject to escalation to reflect changes in mine wages and other mine labor costs. The bid guaranteed a heat content of 11,700 B.t.u. per pound. The bid was not acceptable to TVA in the form in which it was submitted but a mutually satisfactory contract was worked out through negotiations with Peabody, the only bidder, a course which is entirely consistent with recognized principles of competitive bidding.

Question. What are the quantities, terms, and unit prices in this coal contract?

(The information requested follows:)

As awarded on October 1, 1959, the contract with Peabody calls for delivery over a period of approximately 17 years (beginning in August 1962) of approximately 65 million tons of unwashed, mine-run coal with an average guaranteed heat content of 10,770 B.t.u. per pound. The rate of delivery for approximately the first 9 months is 40,000 tons per week and thereafter 80,000 tons per week. The price is $2.95 per ton delivered (by truck) at the TVA plant. This price is subject to escalation to the extent of nine-tenths of any percentage changes in the average mine price of all mine-run coal bought by TVA from other suppliers under contracts with terms in excess of 1 year. TVA has an option under the contract to obtain delivery of additional tonnage during the contract term.

CONGRESSIONAL CONTROL OVER TVA

Question. Does TVA now consider it can construct new powerplants when and where it sees fit, without prior notification to or specific authorization from the Congress?

(The information requested follows:)

This question is fully answered in the opinion of our General Counsel supplied in response to the question which follows.

Question. Will you have your General Counsel prepare for the record his interpretation of the control or lack of control that Congress now has over the power operation of TVA under existing law? This opinion should, among other things, give a definitive answer to the following:

1. What is the geographic area within which TVA can market power from existing or proposed new electric generating plants? Or from plants whose power output is to be purchased or otherwise contracted for by TVA? Relate this to area served at time of passage of H.R. 3460.

2. Can TVA initiate the construction of new generating plants without prior notification to or specific authorization from the Congress?

3. Is there any limitation on the area in which TVA can now construct steam electric plants?

4. If the answer to item 3 is "Yes," what is such limitation?

5. Can TVA enter into contracts to purchase all or port of the power to be available from existing or new non-Federal powerplants outside the TVA area? If so, are there any geographical limitations as to the location of such plants and the area within which the power can be utilized?

6. What are some of the more important legal restrictions or congressional controls TVA believes it is released from by the exception (in sec. 15d(a) of the TVA Act as amended) that expenditures from bond proceeds "shall not be subject to the requirements or limitations of any other law"?

7. Does TVA intend to set up a special account for bond proceeds that will not be reflected in the accounting under the requirements of the Government Corporations Control Act? Will TVA power receipts and their expenditure continue to be reported under the provisions of that act?

(The requested information follows:)

TVA is a wholly owned agency and instrumentality of the United States. It was created and exists under the Tennessee Valley Authority Act of 1933, as amended, and is responsible for carrying out the policies and programs laid down by Congress in the act. Subject to the veto power of the President, Congress may amend the act at any time.

My views on the specific questions are as follows:

1. What is the geographic area within which TVA can market power from existing or proposed new electric generating plants, or from plants whose power output is to be purchased or otherwise contracted for by TVA? Relate this to area served at time of passage of H.R. 3460.

The geographic area within which TVA can market power from existing or proposed new generating plants or from plants whose power output is to be purchased or otherwise contracted for by TVA is specifically defined in section 15d(a) of the Tennessee Valley Authority Act, as amended, as follows:

"* * * Unless otherwise specifically authorized by Act of Congress the Corporation shall make no contracts for the sale or delivery of power which would have the effect of making the Corporation or its distributors, directly or indirectly, a source of power supply outside the area for which the Corporation or its distributors were the primary source of power supply on July 1, 1957, and such additional area extending not more than five miles around the periphery of such area as may be necessary to care for the growth of the Corporation and its distributors within said area: *Provided, however*, That such additional area shall not in any event increase by more than 2½ per centum (or two thousand square miles, whichever is the lesser) the area for which the Corporation and its distributors were the primary source of power supply on July 1, 1957: *And provided further*, That no part of such additional area may be in a State not now served by the Corporation or its distributors or in a municipality receiving electric service from another source on or after July 1, 1957, and no more than five hundred square miles of such additional area may be in any one State now served by the Corporation or its distributors.

"Nothing in this subsection shall prevent the Corporation or its distributors from supplying electric power to any customer within any area in which the Corporation or its distributors had generally established electric service on July 1, 1957, and to which electric service was not being supplied from any other source on the effective date of this Act.

"Nothing in this subsection shall prevent the Corporation, when economically feasible, from making exchange power arrangements with other power-generating organizations with which the Corporation had such arrangements on July 1, 1957, nor prevent the Corporation from continuing to supply power to Dyersburg, Tennessee, and Covington, Tennessee, or from entering into contracts to supply or from supplying power to the cities of Paducah, Kentucky; Princeton, Kentucky; Glasgow, Kentucky; Fulton, Kentucky; Monticello, Kentucky; Hickman, Kentucky; Chicamauga, Georgia; Ringgold, Georgia; Oak Ridge, Tennessee; and South Fulton, Tennessee; or agencies thereof; or from entering into contracts to supply or from supplying power for the Naval Auxiliary Air Station in Lauderdale and Kemper Counties, Mississippi, through the facilities of the East Mississippi Electric Power Association: *Provided further*, That nothing

herein contained shall prevent the transmission of TVA power to the Atomic Energy Commission or the Department of Defense or any agency thereof, on certification by the President of the United States that an emergency defense need for such power exists.

This provision defines the relationship of the area supplied with TVA power on July 1, 1957 to the area within which TVA can now market power. The only major difference between the area on July 1, 1957, and at the time of passage of H.R. 3460 is that on the latter date TVA was no longer the primary source of power supply for the area served by the city of Memphis.

2. Can TVA initiate the construction of new generating plants without prior notification to or specific authorization from the Congress?

Congress has authorized TVA to construct needed generating plants within the limits of its bond issuing authority and the power revenues which are available. No further authorization from Congress is necessary.

TVA's budget program includes a statement of TVA's plans for the construction of new generating plants during the ensuing year, but TVA's authority to construct plants and to issue revenue bonds for that purpose rests on its basic statute. If TVA should find that additional plants were required beyond those mentioned in the President's budget, it would have authority to begin construction of such plants, and would advise Congress of such action in connection with its next annual budget presentation.

3. Is there any limitation on the area in which TVA can now construct steam electric plants?

See answer to No. 4 below.

4. If the answer to item 3 is "Yes," what is such limitation?

The TVA Board is obligated to supply power at the lowest possible cost to the area which relies on TVA as its primary source of power supply and thus is obligated to construct those generating plants which will accomplish that result. Congress elected to limit the area within which TVA power could be supplied but it recognized that any arbitrary limit on the area within which generating plants could be constructed would be inconsistent with the obligation imposed on the TVA Board to produce power at the lowest possible cost. The location of a generating plant can be selected only after a careful weighing of the various factors which determine its economic feasibility. Among the more important factors are availability of coal, transmission distance to the load centers where the power is needed, the availability of adequate water for cooling purposes, and the availability of rail, water, and highway transportation.

5. Can TVA enter into contracts to purchase all or part of the power to be available from existing or new non-Federal powerplants outside the TVA area? If so, are there any geographical limitations as to the location of such plants and the area within which the power can be utilized?

The TVA Board is under a duty to operate the TVA power system as efficiently, and to keep costs as low, as possible. Accordingly, the controlling consideration in a decision whether to purchase power from a non-Federal source, as in the location of a generating plant to be constructed by TVA itself and in a choice between purchase or construction, is whether the power to be obtained will be the most economical available from the standpoint of the TVA power system as a whole. Subject to this basic limitation, there is no arbitrary geographical restriction on the location either of TVA plants or of non-Federal plants from which power may be purchased. Utilization of power from both sources is subject to the geographical limitations set out in the answer to question 1 above.

6. What are some of the more important legal restrictions or congressional controls TVA believes it is released from by the exception (in sec. 15d(a) of the TVA Act as amended) that expenditures from bond proceeds "shall not be subject to the requirements or limitations of any other law"?

The basic purpose of the quoted provision is to enhance the marketability of the bonds by making clear to prospective purchasers that the limitations on the issuance of bonds are those specified in the act itself. It provides additional assurance that TVA's ability to begin construction of new generating capacity as and when needed is not dependent on the appropriation process. It also provides assurance that the flexibility given to TVA in the act will not be restricted inadvertently by statutes of general application.

7. Does TVA intend to set up a special account for bond proceeds that will not be reflected in the accounting under the requirements of the Government Corporations Control Act? Will TVA power receipts and their expenditure continue to be reported under the provisions of that act?

The Government Corporation Control Act contains no accounting requirements. TVA's bond proceeds and their expenditure will be reflected in TVA's budget presentations under the Government Corporation Control Act. TVA power receipts and their expenditure will also be reflected in TVA's budget presentations.

REDUCTION IN TVA LOAD ESTIMATES

Question. It appears that your peakload for this winter of 1959–60 is nearly three-quarter million kilowatts below the estimate you made last year; is this correct? Will you explain why you were so far off from your estimate?

(The information requested follows:)

The estimate of last year for the winter of 1959–60 was 10,300,000 kilowatts. The actual peak demand for the winter was 9,641,000 on March 1, 1960. The difference between the actual and estimate is 659,000 kilowatts. About 300,000 kilowatts of this difference results from less deliveries to the Federal agencies, principally to AEC, than had been estimated. Also, the aluminum producers in this area did not operate four aluminum potlines and associated fabricating equipment which we anticipated to be in operation. That resulted in another 150,000 kilowatts less load. The temperature at the time of our peak on March 1 was 22°, or about 8° warmer than the normal minimum during the winter season when the peak is expected to be established. At that time, wind velocity was higher than normal offsetting some of the warmer-than-normal temperature. The net effect of the weather, however, reduced the system load by at least another 200,000 kilowatts. The sum of these factors adds to 650,000 kilowatts, which almost exactly equals the difference between the estimated and actual demands.

Question. Why have you reduced all your future load estimates by about 800,000 kilowatts below those of last years? Would it have anything to do with the lack of a need to show such a gloomy picture on requirements for future capacity additions, now that you have obtained authority to issue bonds?

(The requested information follows:)

From year to year the load forecasts are adjusted to reflect experience of trends and new developments. In the current estimates the expected demands of AEC on the TVA system were reduced about 600,000 kilowatts. About half of that reduction reflected the information that AEC would not be likely to operate at extended load, as it had in recent years; the rest of the reduction was made on the basis of discussions with AEC of their ability to take more power during part of the year and less during TVA's peak season of the year. Most of the other 200,000-kilowatt reduction was made to reflect later knowledge of industrial trends following the recession.

TVA SYSTEM CAPACITY

Question. Will you bring the tabulation on page 906 of the fiscal year 1960 hearings up to date as of December 31, 1959?

(The requested information follows:)

CAPACITY IN SERVICE DECEMBER 31, 1959

The following table divides the installed capacity among the categories named. It also gives a corresponding approximate breakdown of the estimated maximum capability at time of peak demand (before deducting necessary reserves); however, the total has more validity and significance than the components because the capabilities of individual plants or groups or plants are not independent of each other and because they are more highly variable than the total.

[Kilowatts]

	Installed capacity	Approximate maximum capability at peak demand
Hydroplants:		
TVA	2,742,500	2,553,000
Aluminum Co. of America	425,960	405,000
Corps of Engineers	571,000	474,000
Steamplants, TVA	7,647,250	8,264,000
Total	11,386,710	11,696,000

Question. Will you bring the tabulation on page 907 of the fiscal year 1960 hearings forward to show comparable information as of December 31, for each of the years 1960, 1961, 1962, 1963, and 1964?

(The requested information follows:)

Capacity of presently scheduled additions

[Kilowatts]

	Scheduled installed capacity	Corresponding approximate maximum capability at peak demand (before deducting reserves)
Dec. 31, 1960	11,910,710	12,213,000
Dec. 31, 1961	12,072,710	12,375,000
Dec. 31, 1962	13,269,910	13,575,000
Dec. 31, 1963	[1] 14,441,910	[1] 14,750,000
Dec. 31, 1964	[2]	[2]

[1] Tentative (includes new eastern steam unit, Paradise unit 2, and Melton Hill units 1-2).
[2] Program for 1964 has not yet been determined.

PEAK LOADS ON TVA SYSTEM

Question. Will you bring the tabulation on page 909 of the fiscal year 1960 hearings up to date by adding the figures for fiscal year 1960? It is noted that the Federal Power Commission reports the maximum peak for the TVA system for fiscal year 1960 so far was 9,586,000 kilowatts for January 1960. Has this peak been exceeded since that time?

(The information requested follows:)

TVA system loads at time of system peak, in thousands of kilowatts

Fiscal year	Total for TVA area (1)	Federal loads (2)	Non-Federal loads (3)	Memphis loads included in (3) (4)
1950	2,590	285	2,305	141
1951	3,000	359	2,641	162
1952	3,736	717	3,019	178
1953	4,240	963	3,277	205
1954	5,295	1,409	3,886	227
1955	6,952	2,753	4,199	287
1956	8,298	3,597	4,701	327
1957	9,239	3,795	5,444	301
1958	9,418	3,437	5,981	291
1959	9,702	3,254	6,448	327
1960	9,641	3,276	6,365	0

NOTE.—The load of 9,586,000 kilowatts for January 1960 was exceeded by a load of 9,641,000 kilowatts on Mar. 1, 1960.

Question. Will you furnish for the record a tabulation showing your peak load during each month of calendar year 1959 and of 1960 to date, with a breakdown of this to show Federal load, and non-Federal loads? Also show, if any, the peak delivery to Memphis included in the non-Federal loads.

(The tabulation requested follows:)

TVA system loads at time of system peak, in thousands of kilowatts

Month and year	Total for TVA area (1)	Federal loads (2)	Non-Federal loads (3)	Memphis loads included in col. 3 (4)
January 1959	9,702	3,254	6,448	327
February 1959	9,057	3,351	5,706	91
March 1959	8,701	3,346	5,355	91
April 1959	8,212	3,277	4,935	29
May 1959	7,624	3,254	4,370	35
June 1959	7,718	3,320	4,398	0
July 1959	7,810	3,236	4,574	0
August 1959	7,942	3,381	4,561	0
September 1959	7,598	3,323	4,275	0
October 1959	8,313	3,362	4,951	0
November 1959	9,301	3,320	5,981	0
December 1959	9,164	3,357	5,807	0
January 1960	9,586	3,259	6,327	0
February 1960	9,578	3,235	6,343	0
March 1960	9,641	3,276	6,365	0

ELECTRICITY FOR HOUSE HEATING

Question. Will you bring the tabulation on page 911 of the fiscal year 1960 hearings up to date by only including data for calendar years 1959 and 1960 to date?

(The information requested follows:)

Approximate electricity use for house heating in TVA area

Month and year	Energy, millions of kilowatt-hours	Thousands of kilowatts demand [1]	Month and year	Energy, millions of kilowatt-hours	Thousands of kilowatts demand [1]
1959—January	590	1,680	1959—August	----------	----------
February	420	1,360	September	----------	----------
March	370	1,050	October	120	750
April	130	660	November	430	1,380
May	20	380	December	510	1,240
June	----------	----------	1960—January	570	1,530
July	----------	----------	February	600	1,700

[1] The effect of the house heating loads on the monthly system peak is usually less than the numbers shown because of diversity among these loads and other loads.

DEFICIT OPERATION OF TVA DISTRIBUTORS

Question. We have often heard about how successful the operations have been in the TVA power area and how much greater usage the TVA area has in comparison with the balance of the Nation. In examining the TVA report on the operations of the TVA power distributors, I find a number of instances where the distributors are and have been operating at a deficit and have per customer power use below the national average. Many of these particular TVA distributors have been in operation for 15 or 20 years.

In this connection, will you furnish, for the record for each of the past 5 years, the number of distributors that have either operated in the red in any such year or had a deficit in accumulated net income in any of these years?

(The information requested follows:)

The number of TVA distributors who had either a deficit in accumulated net income during the fiscal years 1955–59 or whose operation during these same years produced a negative operating margin is shown below:

Fiscal year:	
1955	16
1956	14
1957	11
1958	12
1959	9

Amortization collections by distributors are available for the payment of interest on long-term debt. The inclusion of these funds in the distributors' annual operating statement would revise the above figures to those shown below:

Fiscal year:	
1955	5
1956	4
1957	2
1958	4
1959	2

Mr. CANNON. Is there anything further, gentlemen?

(No response.)

Mr. CANNON. We thank you, Mr. Chairman, for one of the finest and ablest statements that I think we have ever had presented to this committee by any Government agency. I congratulate you and I congratulate your staff on the caliber of what you are doing and on the contribution you are making to American progress and prosperity.

Mr. JENSEN. Mr. Chairman.

Mr. CANNON. The gentleman from Iowa.

Mr. JENSEN. Mr. Chairman, I must take just a minute to say that I am very happy to see our former colleague, the Honorable Brooks Hays, as a member of the Board. I served with Mr. Hays for many years, as all of you have on this committee, and I know of no man whom I hold in higher regard than the Honorable Brooks Hays. I know he is going to be a valuable asset to the Tennessee Valley Authority. I know of his great desire to be fair and to do the things which he feels are best for this great, blessed land which he loves so much.

Mr. HAYS. Thank you.

Mr. CANNON. Off the record.

(Discussion off the record.)

Mr. CANNON. Back on the record. Without objection the committee will stand adjourned.

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